Conference on

Accelerating Innovation in 21st Century Biosciences: Identifying the Measurement Standards and Technological Challenges

October 19-22, 2008 ♦ Gaithersburg, MD

NIST
National Institute of Standards and Technology
U.S. Department of Commerce

UMBI
life. science. works.

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19 October 2008

Dear Participants,

On behalf of NIST and UMBI, it is our pleasure to welcome you to the international conference “Accelerating Innovation in 21st Century Biosciences: Identifying the Measurement, Standards and Technological Challenges” in Gaithersburg, Maryland.

We see this as being a landmark event for the biosciences. Never before has there been a meeting that focuses on the measurement and standards barriers to innovation in the biosciences that are impeding the world from fully realizing the benefits of discoveries in medicine, energy, manufacturing, agriculture and the environment. This conference will draw attendance from leading bioscience professionals from all over the world. Speakers representing industry, government policy makers, as well as academic scholars and researchers from the bioscience arena will present and discuss global measurement, standards, and technology concerns in the 21st Century biosciences. The focus will be on strategies and tools to strengthen our global partnerships and information exchange in the realm of the international bioscience arena with an emphasis on five areas:

- Medicine – improving health through measurement of complex biological signatures
- Energy – obtaining sustainable energy from biological sources
- Environment – understanding our planet through linking molecules to ecosystems
- Manufacturing – obtaining higher quality products through better bioprocess measurements
- Agriculture – increasing yield, quality, & safety in the world’s food supply

We will deliver a program consisting of consist of a (1) Governmental Science Policy Roundtable, (2) National Metrology Institute (NMI) Director's Roundtable, (3) Plenary Presentations on the five specific focus areas identified above, and (4) workshop venue to identify & prioritize measurement and standards challenges impeding innovation in the five focus areas (above) plus a parallel session to capture broader needs within the biosciences including hot topics such as:

- Stem Cell Therapies
- Bioremediation
- Emerging Microbiological Threats
- Gene Therapy
- Antibiotic and Antiviral Drug Resistance
- Transgenic Plants and Animals as Biopharmaceutical Sources
- Synthetic Biology
- Marine vs Terrestrial Bioenergy

Technical Panels on the five focus areas and Hot Topics will be delivered in parallel, providing a venue for advanced technical discussion. This Conference pledges to deliver current and relevant technical information for bioscience professionals. It also provides opportunities for industry leaders, managers, academics, and government officials to exchange ideas on technology trends and best practices.

Welcome

We have a great line-up of keynote speakers including:

- Pamela Ronald and Raoul Adamchak, UC Davis – Agriculture
- Anna Palmisano, U.S. Dept. of Energy – Energy
- Stephen Weisberg, So. Calif. Coastal Water Resources Project Authority – Environment
- Jim Thomas, Amgen – Manufacturing
- Leroy Hood, Institute for Systems Biology – Medicine

This three-day conference is an excellent opportunity for you to meet with bioscience practitioners from all over the world, share the view of international policy makers, and create an opportunity for networking, collaboration, sharing of technical information and the building of trust relationships internationally. As always, we extend a warm welcome to all our colleagues in the industry who share our interest in improving innovation in the biosciences.

The beautiful city of Gaithersburg and surrounding Montgomery County of Maryland provides the setting of this ground-breaking conference. Leisure-time and educational activities are abundant in Montgomery County. You can choose from any number of museums, public galleries, theaters, historic sites, and parks. Visit the Clara Barton National Historic Site in Glen Echo, catch an evening play at the Olney Theatre, explore the historic C&O Canal, or spend a day on the lake at Black Hills Regional Park located in Boyds. Taking time to enjoy the surrounding area will add fun and zest to your trip. The banquet will also add real flavor to the event, as we will be sampling some of the best the region has to offer in unique and mouth watering barbeque specialties. The venue is the Smokey Glenn Farm and will offer a setting second to none for business-casual socializing and entertainment.

We are looking forward to meeting you all at what promises to be a most stimulating and enjoyable event!

Sincerely,

Jennie C. Hunter-Cevera

Conference Co-Chair

President
University of Maryland
Biotechnology Institute

Conference Co-Chair

Director
Chemical Science and
Technology Laboratory NIST

OFFICE OF THE COUNTY EXECUTIVE
ROCKVILLE, MARYLAND 20850

Isiah Leggett
County Executive

October, 2008

A Warm Welcome to the Attendees of the NIST Biosciences Conference 2008!

Dear Honored Guests:

I am pleased to extend a warm welcome to our domestic and international guests visiting Montgomery County, Maryland who are attending the National Institutes of Standards and Technology conference - "Accelerating Innovation in 21st Century Biosciences: Identifying the Measurement Standards and Technological Challenges." Your presence has demonstrated that you understand, as we do, the exciting and visionary opportunities this outstanding federal institution has to offer.

As a local government partner, Montgomery County can provide NIST with a number of fundamental programs and services, essential to the success of commercial relationships. Our five innovation centers and small business assistance programs, along with our partnerships with the State of Maryland, the University of Maryland Intellectual Property Legal Resource Center, and the Maryland Technology Development Corporation, are but a few of the opportunities we can provide companies seeking connections with our federal assets. Whether it is through traditional technology transfer tools, professional volunteer agreements, or more unconventional and innovative mechanisms, our partnership with NIST can provide support to business community they serve.

Deputy Director Dr. James Turner stated that "NIST strives to improve the nation's platform for discovery, innovation, and commercialization." We believe that NIST's location in Montgomery County has helped to spotlight the knowledge-based workforce and economic vibrancy of this community. While you are here I hope you take the time to learn more about Montgomery County, Maryland -- the *Smart*Location for your expansion needs.

Best wishes on a successful conference!

Sincerely,

Isiah Leggett

Isiah "Ike" Leggett
County Executive

IL:fh

Welcome

STATE OF MARYLAND
OFFICE OF THE GOVERNOR

MARTIN O'MALLEY
GOVERNOR

STATE HOUSE
100 STATE Circle
ANNAPOLIS, MARYLAND 21401-1925
(410) 974-3901
(TOLL FREE) 1-800-811-8336

TTY USERS CALL VIA MD RELAY

A MESSAGE FROM GOVERNOR MARTIN O'MALLEY

Dear Friends,

On behalf of the State of Maryland, I'd like to welcome you to the "Accelerating Innovation in the 21st Century Biosciences" conference! I'm very pleased two world renowned Maryland institutions, the National Institute of Standards and Technology and the University of Maryland Biotechnology Institute, are co-hosting this important conference of national and international experts from industry, academia, and government.

As you identify and prioritize the critical measurements and standards needed in the biosciences, you are forming the path forward for life sciences commercialization that will enhance our nation's ability to compete in this critical industry. There is no better place to take on that task than right here in Maryland. With strong partnerships between our public and private sectors, and collaborative research with our universities, Maryland is a global leader in the research and development of groundbreaking new science with the potential to reshape the landscape of 21st century medicine.

Accordingly, Maryland has created a number of models for medical discovery that are being emulated by other States wishing to jump start their biosciences clusters. One such model is our Maryland Bio 2020 Initiative, the largest per capita investment ever proposed to expand a State's role in life sciences and related fields. This $1.3 billion initiative offers a new vision for Maryland biosciences that will create initiatives and enhance investment to foster innovation and commercialization. The Maryland Bio 2020 Initiative leverages our competitive and innovative private sector, our nationally recognized highly skilled workforce, and our institutions of higher learning to advance cutting-edge research and development.

The work that you are undertaking in this conference has the potential to greatly benefit Maryland and the nation. I wish you much success and offer our State's support to your efforts.

Please enjoy the conference and Maryland's hospitality.

Sincerely,

Martin O'Malley
Governor

The National Institute of Standards and Technology (NIST)

From automated teller machines and atomic clocks to mammograms and semiconductors, innumerable products and services rely in some way on technology, measurement, and standards provided by the National Institute of Standards and Technology.

Founded in 1901, NIST is a non-regulatory federal agency within the U.S. Department of Commerce. NIST's mission is to promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve our quality of life. NIST carries out its mission in four cooperative programs:

- the NIST Laboratories, conducting research that advances the nation's technology infrastructure and is needed by U.S. industry to continually improve products and services;
- the Baldrige National Quality Program, which promotes performance excellence among U.S. manufacturers, service companies, educational institutions, health care providers, and nonprofit organizations; conducts outreach programs and manages the annual Malcolm Baldrige National Quality Award which recognizes performance excellence and quality achievement;
- the Hollings Manufacturing Extension Partnership, a nationwide network of local centers offering technical and business assistance to smaller manufacturers;
- and the Technology Innovation Program, which is planned to provide cost-shared awards to industry, universities and consortia for research on potentially revolutionary technologies that address critical national and societal needs.

Website: www.nist.gov

The University of Maryland Biotechnology Institute (UMBI)

The University of Maryland Biotechnology Institute is a hub of intensive study into the applied science of biotechnology and its application to human health, the marine environment, agriculture, and protein engineering/structural biology.

Established in 1985 by the State of Maryland, UMBI's four centers conduct research and training that provide a core of expertise and facilities to advance the state's scientific and economic development.

UMBI emphasizes collaboration with industry, other research institutions, and federal laboratories; and sponsors training workshops, short courses, symposia, and seminars throughout the year.

UMBI's mission is to conduct groundbreaking research in key areas of biotechnology, to make fundamental discoveries, generate innovative solutions to practical problems, and develop new technologies for commercial application. UMBI is committed to providing an exceptional environment for specialized training and to mentoring tomorrow's biotechnology workforce while promoting economic growth.

Website: www.umbi.org

Sponsors

American Autoimmune Related Diseases Association, Inc. (AARDA)

The American Autoimmune Related Diseases Association is dedicated to the eradication of autoimmune diseases and the alleviation of suffering and the socioeconomic impact of autoimmunity through fostering and facilitating collaboration in the areas of education, public awareness, research, and patient services in an effective, ethical and efficient manner.

The AARDA is the only national nonprofit health agency dedicated to bringing a national focus to autoimmunity, the major cause of serious chronic diseases. Approximately 50 million Americans, 20 percent of the population or one in five people, suffer from autoimmune diseases. Women are more likely than men to be affected; some estimates say that 75 percent of those affected--some 30 million people--are women. Still, with these statistics, autoimmunity is rarely discussed as a women's health issue.

Website: www.aarda.org

Aspen Technology, Inc.

AspenTech is the world's leading supplier of software that optimizes process manufacturing.
From our MIT and U.S. Department of Energy roots in the early 1980s, to the groundbreaking release of aspenONE V7 in 2008, AspenTech has always been at the forefront of innovation in the process industries.

With integrated aspenONE solutions, process manufacturers can implement best practices for optimizing their engineering, manufacturing, and supply chains. As a result, AspenTech customers are better able to achieve their operational excellence goals -- increasing capacity, improving margins, reducing costs, and becoming more energy efficient.

Today, AspenTech solutions are used by virtually every leading company in the process manufacturing industry. Over 75,000 users at over 1,500 companies rely on AspenTech. For over 25 years, AspenTech customers have achieved hundreds of millions in dollars in cost savings and performance improvements.

And in 2008, the culmination of that industry leadership and experience was manifested in the release of aspenONE V7. It represents best practices for process optimization. It redefines ease-of-use in software for the process industries. It makes operational xcellence achievable and – even in the face of today's market challenges – easier than you think.

Website: www.aspentech.com

Energetics, Inc.

Energetics Incorporated is a full-service technical and management consulting company.

We provide our clients with support to help research, develop, and commercialize new technologies to meet the nation's need for cost-effective, efficient, and environmentally friendly sources of energy. In addition, we provide technical and management support to those clients responsible for the protection of the U.S. infrastructure related to energy assurance and homeland security.

Our special strengths include an in-depth knowledge of:

- Energy supply and generation technologies
- Electric utility industry/technologies
- Federal energy and environmental regulation
- Advanced transportation and industrial technologies
- Process and manufacturing industries
- Buildings energy technology
- Energy assurance and security

Website: www.energetics.com

IEEE★USA

IEEE-USA is an organizational unit of the Institute of Electrical and Electronics Engineers, Inc. created in 1973 to support the career and public policy interests of IEEE's U.S. members. IEEE-USA is primarily supported by an annual assessment paid by U.S. IEEE members.

IEEE-USA's mission as outlined in the IEEE Bylaws is to recommend policies and implement programs specifically intended to serve and benefit the members, the profession, and the public in the United States in appropriate professional areas of economic, ethical, legislative, social and technology policy concern.

Our vision is to serve the IEEE U.S. member by being the technical professional's best resource for achieving life long career vitality and by providing an effective voice on policies that promote U.S. prosperity.

Website: www.ieeeusa.org

Sponsors

U.S. Pharmacopeia (USP)

The United States Pharmacopeia (USP) is an official public standards–setting authority for all prescription and over–the–counter medicines and other health care products manufactured or sold in the United States. USP also sets widely recognized standards for food ingredients and dietary supplements. USP sets standards for the quality, purity, strength, and consistency of these products–critical to the public health.

USP's standards are recognized and used in more than 130 countries around the globe. These standards have helped to ensure public health throughout the world for close to 200 years.

USP is a non-governmental, not-for-profit public health organization whose independent, volunteer experts work under strict conflict–of–interest rules to set its scientific standards. USP's contributions to public health are enriched by the participation and oversight of volunteers representing pharmacy, medicine, and other health care professions as well as academia, government, the pharmaceutical and food industries, health plans, and consumer organizations.

USP's mission is to improve the health of people around the world through public standards and related programs that help ensure the quality, safety, and benefit of medicines and foods.

Website: www.usp.org

Waters

For fifty years, Waters Corp. has developed innovative analytical science solutions to support customer discoveries, operations, performance, and regulatory compliance.

Waters Corp. holds worldwide leading positions in complementary analytical technologies – liquid chromatography, mass spectrometry, rheometry and microcalorimetry. These markets account for approximately $5.0 billion of the estimated $20 - $25 billion worldwide analytical instrumentation market.

Specifically, the company designs, manufactures, sells and services ultra performance liquid chromatography (UPLC), high performance liquid chromatography (HPLC), chromatography columns and chemistry products, mass spectrometry (MS) systems, thermal analysis and rheometry instruments.

Waters Corp. operates in two divisions: Waters Division and TA Instruments.

Website: www.waters.com

Montgomery County Maryland Department of Economic Development

Department of Economic Development
SMARTMontgomery.com

Montgomery County, Maryland, is your gateway to the Mid-Atlantic's robust business community! Centrally located at the epicenter of the region's federal and advanced technology marketplace, we are literally next door to the Nation's Capital and are home to:

- Over 200 biotech companies
- The highest concentration of Ph.D.s in the nation
- More than 100,000 advanced technology workers
- Nineteen federal research and regulatory agencies
- More entrepreneurs than any other jurisdiction in the nation
- The largest number of women and Asian owned businesses in Maryland
- Half of all Hispanic owned businesses in Maryland
- The 2nd largest and fastest growing number of African American owned businesses in Maryland

Montgomery County is two hours or less by air from 60 percent of the U.S. and Canadian population. We have three major airports offering 476 weekly non-stop flights to 35 destinations in 30 foreign countries. Federal agencies including the National Institutes of Health, the Food and Drug Administration and the National Institute of Standards and Technology (NIST) all call us home. So do industry leaders like Discovery Communications, Hughes Network Systems, Human Genome Sciences, Lockheed Martin, Marriott International, and MedImmune.

Our highly-successful Business Innovation Network nurtures and grows young entrepreneurs into thriving county employers.

Our nationally renowned 93,000-acre Agricultural Reserve helps protect, promote and support our diverse agribusinesses.

Our award-winning Small Business Mentorship Program pairs new business owners with successful business leaders.

Our Local Small Business Reserve Program helps ensure that local businesses get their share of county procurement contracts.

Combine this with our world-class conference and performing arts venues and array of culturally diverse restaurants and neighborhood communities, and it's easy to see why Montgomery County, Maryland is "The SMARTBusiness Location."

Website: www.montgomerycountymd.gov

Human Genome Sciences

The mission of HGS is to apply great science and great medicine to bring innovative drugs to patients with unmet medical needs.

We are poised for the market with a clinical pipeline that includes three novel products in late-stage development: Albuferon® in Phase 3 trials for hepatitis C, LymphoStat-B® in Phase 3 trials for systemic lupus, and ABthrax™ in late-stage development for inhalation anthrax.

Both Albuferon and LymphoStat-B have the therapeutic potential to change and save lives and the commercial potential to become blockbusters in the marketplace. Each is being co-developed and commercialized in collaboration with a world leader in the pharmaceutical industry – Novartis for Albuferon and GlaxoSmithKline (GSK) for LymphoStat-B.

ABthrax is being developed under a contract with the U.S. Government and represents a new way to address the threat of inhalation anthrax. The pivotal efficacy studies have demonstrated a dramatic and significant survival benefit, and we are manufacturing on schedule to begin delivery of ABthrax to the Strategic National Stockpile by fall 2008.

Right behind these three late-stage products is a high-potential mid-stage pipeline led by our TRAIL receptor antibodies for cancer – and including a number of products to which HGS has substantial financial rights in the GSK pipeline.

Our manufacturing capability represents a significant strategic advantage. HGS is able to produce and purify multiple protein and antibody drugs in two state-of-the-art process development and manufacturing facilities – totaling approximately 400,000 square feet and offering both small-scale and large-scale production.

Unlike many pre-commercial biopharmaceutical companies, HGS has built a strong cash position that allows us to focus on advancing our lead products toward commercialization as rapidly as possible, while at the same time investing in our early- and mid-stage pipeline. We are committed to achieving and sustaining growth well into the future.

Website: www.hgsi.com

Johns Hopkins University

The mission of The Johns Hopkins University is to educate its students and cultivate their capacity for life-long learning, to foster independent and original research, and to bring the benefits of discovery to the world.

To create an interactive community of educators, students, researchres, corporations and government representatives whose collaborative thinking and discovery expand academic and technological boundaries and advance economic delopment.

Website: www.jhu.edu

The National Institute of Standards and Technology (NIST) and the University of Maryland Biotechnology Institute (UMBI) are co-hosting this international conference. The symposium and workshops are focused on identifying and prioritizing measurement, standards, and technology needs that represent barriers to innovation and impediments to achieving maximal societal and economic benefits of new discoveries in the biosciences.

The conference will identify and prioritize measurement, standards and technology barriers to the realization of optimal economic and broad societal benefit from new discoveries in the following focus areas:

Agriculture ♦ increasing yield, quality, & safety in the world's food supply

Energy ♦ obtaining sustainable energy from biological sources

Environment ♦ understanding our planet through linking molecules to ecosystems

Manufacturing ♦ obtaining higher quality products through better bioprocess measurements

Medicine ♦ improving health through measurement of complex biological signatures

Hot Topics ♦ addressing unrecognized, overlooked, underestimated, and often ignored measurement needs in the biosciences

Outcome

The expected outcome is to create a listing of measurement, standards, and technology needs to inform and guide research at NIST and the measurement and standards community worldwide.

Conference Format

The format of the Conference will be a Plenary Symposium with lectures from visionary bioscience thought-leaders discussing future trends and measurement, standards and technology needs in the conference focus areas workshops to identify & prioritize measurement, and standards challenges impeding innovation in focus areas.

The Conference will consist of a one-day Symposium of plenary presentations focused on bioscience-related areas with great potential for economic and overall societal benefit. Following the symposium, measurement and standards challenges representing significant barriers to innovation in each of the focus areas will be identified and prioritized through specific technical panels during the course of the multi-day workshop.

Stakeholders

National and international experts from industry, academia, and government focused on the broad spectrum of measurement and standards needs in the biosciences.

For more information: www.cstl.nist.gov/Biosciences.html

Agenda

Conference on Accelerating Innovation in 21st Century Biosciences: Identifying the Measurement Standards and Technological Challenges

October 19-22, 2008 ♦ **Gaithersburg, MD**

Sunday, October 19

Pre-Registration **5:00-7:00p.m.**
Conference Hotel

Marriott Courtyard Gaithersburg Washingtonian Center
204 Boardwalk Place
Gaithersburg, MD 20878
Phone: 301-527-9000

Co-Sponsors Exhibits **5:00-7:00p.m.**

Monday, October 20

Meet Conference Bus **7:00a.m, 7:30a.m.**
Hotel Front Entrance

Registration **7:00-8:00a.m.**
Administration Building, Red Auditorium

Morning Session **8:00a.m.-12:00p.m.**
Administration Building, Red Auditorium

Exhibit Setup **8:00a.m.-12:00p.m.**

8:00-8:15 Introduction and Welcome: Jennie Hunter-Cevera, UMBI
Willie May, NIST

8:15-10:00 Science Policy Roundtable:

- Laurence Besley, Department of Innovation, Industry, Science and Research, Australia
- Chavonda Jacobs-Young, Office of Science and Technology Policy, USA
- Timothy Hall, Directorate General for Research, EC
- João Alziro Herz da Jornada, Department of the Development, Industry and Exterior Commerce, Brazil

Moderator: *Mitch Waldrop, Nature*

10:00-10:30 Break

Agenda

Monday, October 20

Morning Session **8:00a.m.-12:00p.m.**
Administration Building, Red Auditorium

10:30-12:00 NMI Directors' Roundtable:

- Kwang Hwa Chung, KRISS, Korea
- Patrick Gallagher, NIST, USA
- Alejandro Herrero Molina, JRC-IRMM, EC
- Anna Hills, NPL, UK
- James McLaren, NRC INMS, Canada
- Marc Pieksma, NMi, The Netherlands

Moderator: *Robert Kaarls, Secretary of CIPM*

Discussion **12:00-12:30p.m.**
Administration Building, Red Auditorium

Lunch **12:30-1:30p.m.**
Administration Building, Cafeteria

Exhibits Open **12:00-5:30p.m.**

Afternoon Session **1:30-5:30p.m.**
Administration Building, Red Auditorium

Plenary Symposium:

- Medicine Plenary Lecture — Lee Hood, Inst. for Systems Biology
- Energy Plenary Lecture — Anna Palmisano, U.S. DoE
- Environment Plenary Lecture — Stephen Weisberg, Southern California Coastal Water Research Project Authority

Break **3:45-4:00p.m.**

- Manufacturing Plenary Lecture — James Thomas, Amgen
- Agriculture Plenary Lecture — Pamela Ronald, UC Davis and Raoul Adamchak, UC Davis

Moderators: *Helen Parkes, LGC*
Gary Brooker, Johns Hopkins University

Reception **5:30p.m.**
NIST

Return to Hotel (Bus Transportation) **6:30p.m., 7:00p.m.**
Meet bus at Administration Building Lobby

Tuesday, October 21

Meet Conference Bus **8:00a.m., 8:30a.m.**
Hotel Front Entrance

Registration **8:30-9:00a.m.**
Administration Building, Red Auditorium

Exhibits Open **9:00a.m.-5:00p.m.**

Morning Session **9:00a.m.-1:00p.m.**
Administration Building, Red Auditorium and Lecture Rooms

9:00-10:00	-- Summary of Plenary Session	Jennie Hunter-Cevera
	-- Charge to the Working Groups	Willie May
	-- Technical Panel Process Agenda	Joan Pellegrino
10:00-11:00	Parallel Technical Panels and Hot Topics Session	

Break **11:00-11:15a.m.**

11:15-1:00 Parallel Technical Panels and Hot Topics Session

Lunch **1:00-2:00p.m.**
Administration Building, Cafeteria

Afternoon Session **2:00-5:30p.m.**
Administration Building, Red Auditorium and Lecture Rooms

2:00-3:15 Parallel Technical Panels and Hot Topics Session

Break **3:15-3:30p.m.**

3:30-5:30 Parallel Technical Panels and Hot Topics Session

Meet Conference Bus to Hotel **5:30p.m., 6:00p.m.**
Meet bus at Administration Building Lobby

Agenda

Tuesday, October 21

Meet Conference Bus to Dinner **6:15p.m., 6:30p.m.**
Hotel Front Entrance

Evening Social Hour and Dinner **6:30-8:30p.m.**
Smokey Glen Farm Barbequers, Inc.

16407 Riffleford Road
Gaithersburg, MD 20878
www.smokeyglenfarm.com

Casual Dress
Directions included

Meet Conference Bus to Hotel **8:30p.m., 9:00p.m.**

Wednesday, October 22

Meet Conference Bus **8:00a.m., 8:30a.m.**
Hotel Front Entrance

Registration **8:30-9:00a.m.**
Administration Building, Red Auditorium

Exhibits Open **9:00a.m.-2:30p.m.**

Morning Session **9:00a.m.-12:00p.m.**
Administration Building, Red Auditorium and Lecture Rooms

9:00-10:45 Parallel Technical Panels Continue

Break **10:45-11:00a.m.**

11:00-12:00 Parallel Technical Panels Continue

Lunch **12:00-1:00p.m.**
Administration Building, Cafeteria

Afternoon Session **1:00-3:30p.m.**
Administration Building, Red Auditorium and Lecture Rooms

1:00-3:00 Technical Panels Report-Out Session

3:00-3:30 Wrap-up

Adjourn **3:30p.m.**
Bring luggage to NIST for departure

Hot Topics Session

HOT TOPICS SESSION

Addressing Unrecognized, Overlooked, Underestimated and Ignored Measurement Needs in:

- **Stem Cell Therapies**
- **Bioremediation**
- **Emerging Microbiological Threats**
- **Gene Therapy**
- **Antibiotic and Antiviral Drug Resistance**
- **Transgenic Plants and Animals as Biopharmaceutical Sources**
- **Synthetic Biology**
- **Marine vs Terrestrial Bioenergy**

Tuesday, October 21

Morning Session **9:00a.m.-1:00p.m.**
Administration Building, Red Auditorium and Lecture Rooms

Afternoon Session **2:00-5:30p.m.**
Administration Building, Red Auditorium and Lecture Rooms

Biomedical Topics

1. Keith Yamamoto – University of California San Francisco and National Academy of Science
2. Kathy Hudson – John Hopkins University
3. Ann Reid – National Academy of Science
4. Renee Reijo-Pera – Stanford University School of Medicine

Non-Medical Topics

1. Gregory Petsko – Brandeis University
2. George Pierce – Georgia State University
3. Feng Chen – University of Maryland Biotechnology Institute, Center of Marine Biotechnology
4. Robert Wall – U.S. Department of Agriculture
5. Joseph Spence – U.S. Department of Agriculture

Wednesday, October 21

Morning Session **9:00a.m.-12:00p.m.**
Administration Building, Red Auditorium and Lecture Rooms

Jennie Hunter-Cevera, Ph.D.

Organization: **University of Maryland Biotechnology Institute (UMBI) Rockville, MD, USA**

Presentation: **Conference Co-Chair Moderator, Hot Topics Session**

Jennie C. Hunter-Cevera, Ph.D. has served as President of the University of Maryland Biotechnology Institute since October of 1999. Prior to this, she was the Director of the Center for Environmental Biotechnology at the E. O. Lawrence Berkeley National Laboratory which was a collaborative effort between the Lab and the University of California at Berkeley. Earlier, she was co-founder of two small companies (The Biotic Network and Blue Sky Research) that did contract work for large pharmaceutical and biotechnology companies and also consulted for five years in a variety of biotechnology fields.

For 10 years Dr. Hunter-Cevera was employed at Cetus Corporation and served as the Director of Fermentation, Research and Development and before that at E. R. Squibb and Sons as a Research Scientist. Dr. Hunter-Cevera has served as President of the Society of Industrial Microbiology (SIM), the United States Federation of Culture Collections (USFCC) and the International Marine Biotechnology Association. She served as Senior Editor for the Journal of Industrial Microbiology for ten years. Dr. Hunter-Cevera also served as a member on former USDA Secretary Glickman's Genetic Resources Advisory Board and President Clinton's State Department Council on Genetically Modified Foods. Dr. Hunter-Cevera also served as the United States representative to the OECD on Biological Resource Centers.

Dr. Hunter-Cevera was elected to the American Academy of Microbiology in 1995, received the 1996 SIM Charles Porter Award, and was elected as a SIM Fellow in 1997. She was the West Virginia University Nath Lecturer in 1999 and appointed by Governor Glendening as Maryland's Science and Technology Representative for the Southern Governor's Association in 2000.

Dr. Hunter-Cevera was honored by her alma mata, West Virginia University, as the 2003 recipient of the Distinguished Alumni Award. In 2004, Dr. Hunter-Cevera was the recipient of the USFCC/J. Roger Porter Award. Supported by the United States Federation for Culture Collections (USFCC) and ASM, the award recognized Dr. Hunter-Cevera's expertise in culturing, maintaining, and preserving microbial cultures. She was honored as one of Maryland's Top 100 Women for 2003 and 2007. She was recognized in 2007 as one of the 50 Most Influential People in Maryland. Dr. Hunter-Cevera served on Governor Ehrlich's Technology Commission for the State of Maryland and was one of six members of the Governor's Executive Council for Transition.

Dr. Hunter-Cevera holds several patents in natural products and enzymes, has written many scientific publications in the area of microbial ecology and screening, and has been an invited speaker at scientific meetings throughout the world. She chaired the NAS committee on the DOE's GTL program on biofuels and is currently chairing a standing committee and a planning committee on biodefense to examine the production of therapeutics and vaccines for the DoD.

Willie E. May, Ph.D.

Organization: **National Institute of Standards and Technology (NIST) Gaithersburg, MD, USA**

Presentation: **Conference Co-Chair and Moderator**

Dr. Willie E. May is director of the Chemical Science and Technology Laboratory (CSTL), one of the nine technical Operational Units within the National Institute of Standards and Technology. The NIST Mission is to promote U.S innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve quality of life. CSTL supports NIST's Mission by addressing customer needs for measurements, standards, and data in the areas broadly encompassed by chemistry, chemical engineering and the biosciences. Areas of growth and/or increased emphasis include bioscience and health, nanometrology, climate change science, and renewable energy technologies. The laboratory is organized into six Divisions along disciplinary lines, Biochemical Science, Process Measurements, Surface and Microanalysis Science, Analytical Chemistry, Thermophysical Properties, and Chemical and Biochemical Reference Data.

Prior to his current position, Dr. May led NIST's research and measurement service activities within analytical chemistry for more than 20 years. His personal research activities were focused in the area of trace organic analytical chemistry, with special emphasis on the development of liquid chromatographic methods for the determination of individual organic species in complex mixtures and the development of liquid chromatographic methods for the determination of physico-chemical properties such as aqueous solubilities, octanol/water partition coefficients, and vapor pressures of organic compounds. This work is described in more than 100 peer-reviewed publications. During his 35+-year professional career, presented more than 250 invited lectures at U.S. industrial sites, Colleges/Universities and Technical Meetings throughout the world.

Dr. May has several leadership responsibilities in addition to those at NIST. He is Chair, of Organic Analysis Working Group, Consultative Committee on the Quantity of Material (Chemical Measurements), International Committee for Weights and Measures; Chair, Chemical Metrology Working Group, Interamerican System for Metrology; Co-Chair of the Joint Committee on Traceability in Laboratory Medicine Working Group on Reference Materials and Reference Procedures; and Chair, Executive Board for the Hollings Marine Laboratory in Charleston, SC.

Laurence Besley, Ph.D.

Organization: **Australia's National Measurement Institute (NMIA) Lindfield, NSW, Australia**

Presentation: **Science Policy Roundtable**

Dr. Laurie Besley is the Chief Executive and Chief Metrologist at Australia's National Measurement Institute (NMIA). He has occupied this position since December 2007, when he succeeded Dr. Barry Inglis on the latter's retirement.

Dr. Besley's scientific and management career has spanned a diversity of fields including, for the last ten years, metrology in chemistry. After beginning his career in cryogenic temperature measurement and spending 20 years working in physical metrology, he applied his Ph.D. in chemistry to transplanting the metrological approach from physics to chemistry and initiated work in this area within what was then the National Measurement Laboratory (NML). He was subsequently appointed Director of the National Analytical Reference Laboratory within the Australian Government Analytical Laboratories (AGAL). When AGAL and NML both became part of the new organisation NMIA in 2004, he was appointed to a role as general manager of the metrology in chemistry branch and late last year was given his present role. Dr Besley has a publication list of some 75 journal publications in a variety of different fields of metrology.

Dr. Besley is active in a number of international forums. Amongst others, for ten years he has been Australia's representative at the Consultative Committee for Amount of Substance, a part of the structure of the International Committee of Weights and Measures. He is a member of the Executive Committee of the Asia-Pacific Metrology Programme (APMP) and is the principal author of the APMP's influential "Guide to Creating or Improving a National Infrastructure for Chemical Measurement". He is also a member of the editorial boards of the international journals "Metrologia", "IET Science Measurement & Technology", and "Accreditation and Quality Assurance".

Chavonda Jacobs-Young, Ph.D.

Organization: **President's Office of Science and Technology Policy (OSTP) Washington, DC, USA**

Presentation: **Science Policy Roundtable**

Chavonda joined OSTP in May 2008 as a member of the USDA Senior Executive Service Candidate Development Program. She is providing leadership in support of the agriculture biotechnology portfolio. Dr. Jacobs-Young is the NPL for Biobased Products and Bioenergy Production in the USDA's National Research Initiative providing leadership for agency research programs in the areas of value-added biobased products including non-food processing, biotechnology, metabolic engineering, bioenergy production, and forest products. She has direct programmatic and administrative responsibility for competitive grant allocations totaling $7 million. Prior to joining the USDA, Chavonda was a faculty member in the Paper Science and Engineering Department at the University of Washington. Her corporate experience includes working with various corporations including; E.I. Dupont De Nemours, Kimberly-Clark Company, Federal Paper Board, Kraft General Foods and Weyerhaeuser Company.

Timothy Hall, Ph.D.

Organization: **European Commission**
DG Research
Brussels, Belgium

Presentation: **Science Policy Roundtable**

T.J. Hall worked as an agricultural research scientist in the UK before joining the European Commission services in 1983, becoming Head of Unit for S&T Cooperation with Developing Countries in 1994. He has also headed units in the Quality of Life and Health Research Directorates between 1999 and 2006.

His current position (since October 2006) is Head of Unit for Agriculture, Forestry, Fisheries and Aquaculture Research with primary responsibilities for overseeing the management of projects and coordination initiatives in these areas.

Since 1 September 2007, he also holds the position of Acting Director for Biotechnologies, Agriculture and Food in the Directorate General for Research.

Biographies

João Alziro Herz da Jornada, Ph.D.

Organization: **National Institute of Metrology, Standardization, and Industrial Quality (INMETRO)**
Rio de Janeiro, Brazil

Presentation: **Science Policy Roundtable**

Born on June 1, 1949 in São Borja, Rio Grande do Sul. He did his B.Sc. in Physics at the School of Philosophy of the Federal University of Rio Grande do Sul, UFRGS, in 1971. He did his M.Sc. in Physics and Ph.D. at the UFRGS in 1973 and 1979, respectively.

Main research lines: high pressure physics and science of the materials. Consultant of CAPES, FINEP, CNPq and FAPESP. Member of the Advising Committee of Physics and Astronomy of the CNPq from 1993 to 1995 and from 1998 to 2000. Coordinator of the Executive Committee of the Metrological Net of Rio Grande do Sul, since 1993. Executor of agreements of FINEP and Fapergs. Full Professor of the UFRGS, Coordinator of the Research Committee of the Physics Institute of the UFRGS, and Head of Research of the High Pressure Group of the same Institute.

He presided over the Research Chamber of the UFRGS. He is a researcher of the CNPq. Member of the Editorial Council of the following magazines: High Temperatures - High Pressures; Journal of Superhard Materials; Material Research. He is the editor of the Applied Physics and Instrumentation Magazine. He oriented 10 Masters Thesis and 9 Doctoral Thesis. He is the Director of the Scientific and Industrial Metrology Sector of the INMETRO and President of the INMETRO. He is a member of the Brazilian Academy of Sciences.

M.Mitchell Waldrop, Ph.D.

Organization: **Nature Magazine**
Washington, DC, USA

Presentation: **Moderator, Science Policy Roundtable**

M. Mitchell Waldrop is currently the editor for editorials at Nature magazine.

He earned a Ph.D. in elementary particle physics at the University of Wisconsin in 1975, and a Master's in journalism at Wisconsin in 1977. From 1977 to 1980 he was a writer and West Coast bureau chief for Chemical and Engineering News. From 1980 to 1991 he was a senior writer at Science magazine, where he covered physics, space, astronomy, computer science, artificial intelligence, molecular biology, psychology, and neuroscience.

He was a freelance writer from 1991 to 2003 and from 2007 to 2008; in between he worked in media affairs for the National Science Foundation from 2003 to 2006. He is the author of Man-Made Minds (Walker, 1987), a book about artificial intelligence; Complexity (Simon & Schuster, 1992), a book about the Santa Fe Institute and the new sciences of complexity; and The Dream Machine (Viking, 2001), a book about the history of computing. In his spare time he is an avid cyclist. He lives in Washington, D.C. with his wife, Amy E. Friedlander.

Kwang Hwa Chung, Ph.D.

Organization: **Korea Research Institute of Standards and Science (KRISS) Daejeon, Korea**

Presentation: **NMI Directors' Roundtable**

Dr. Kwang Hwa Chung is the 9th President of the Korea Research Institute of Standards and Science (KRISS), appointed by the Korea Research Council of Public Science & Technology on December 9, 2005. As President of KRISS, Dr. Chung directs various programs that help strengthen Korean economy by developing and disseminating the national measurement standards and technologies.

Dr. Chung received her Ph. D. in particle physics from the University of Pittsburgh and B.S. in physics from Seoul National University. Since joining KRISS in 1978, she had served various positions including director of the physical metrology division, chief of mass standards laboratory, and chief of the vacuum laboratory, specializing in pressure and vacuum technology.

In the area of national science and technology policy, Dr. Chung was involved in the National Science and Technology Council, the Korean National Commission for UNESCO, and the National Fusion Research and Development Committee. She also led the national R&D projects evaluation committee as Chairperson. In addition, Dr. Chung has been serving as a member of National Science & Technology Council, appointed by President Lee.

Dr. Chung has been actively engaged in activities of scholarly societies including the Korean Physical Society, the Association of Korean Woman Scientist and Engineers and the Korean Vacuum Society as President.

For the global community of metrology, Dr. Chung has been serving as Chairperson of the Asia-Pacific Metrology Programme (APMP) since November 2007. She was elected the CIPM member in 2008.

Pat Gallagher, Ph.D.

Organization: **National Institute of Standards and Technology (NIST)**
Gaithersburg, MD, USA

Presentation: **NMI Directors' Roundtable**

Dr. Patrick Gallagher is the Deputy Director of the U.S. Department of Commerce's National Institute of Standards and Technology (NIST). He is also carrying out the responsibilities of the Director. (The NIST Director position is vacant.) Gallagher provides high-level oversight and direction for NIST. The agency promotes U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology. NIST's FY 2008 resources total $931.5 million and the agency employs about 2,900 scientists, engineers, technicians, support staff and administrative personnel at two main locations in Gaithersburg, Md., and Boulder, Colo. Along with the Department of Energy Office of Science, and the National Science Foundation, NIST is slated for substantial budget increases for its core research programs under the President's American Competitiveness Initiative.

Gallagher has been Director of the NIST Center for Neutron Research (NCNR), a national user facility for neutron scattering on the NIST Gaithersburg campus, since 2004. The NCNR provides a broad range of neutron diffraction and spectroscopy capability with thermal and cold neutron beams and is presently the nation's most used facility of this type. Gallagher received his Ph.D. in Physics at the University of Pittsburgh in 1991. His research interests include neutron and X-ray instrumentation and studies of soft condensed matter systems such as liquids, polymers and gels. In 2000, Gallagher was a NIST agency representative at the National Science and Technology Council (NSTC). He has been active in the area of U.S. policy for scientific user facilities and was chair of the Interagency Working Group on neutron and light source facilities under the Office of Science and Technology Policy.

Alejandro Herrero Molina, Ph.D.

Organization: **JRC Institute for Reference Materials and Measurements (IRMM)**
Geel, Belgium

Presentation: **NMI Directors' Roundtable**

Dr. Herrero received his Ph.D. in Food Science & Technology, minor in Biochemical Engineering from Massachusetts Institute of Technology, Cambridge, MA in 1981; his Ph.D. in Biochemistry from Universidad Complutense de Madrid in 1975; and his Bachelor in Chemical Sciences, specialisation in Biochemistry from Universidad Complutense de Madrid in 1970.

Dr. Herrero career has expanded from 1981 at Arthur D. Little Inc. (ADL); 1984 at National Institute of Industry (INI), Director General of Inmunología y Genética Aplicada S.A., a high-tech biotechnology company; 1988: European Commission, Directorate General for Research (DG RTD). Within DG RTD Dr. Herrero has served i) as coordinator of the "International Scientific Co-operation" with countries of Asia, Latin America and the Mediterranean (1988-93); ii) as Head of Unit for Demonstration Projects in the Life Sciences Research Programmes (1993-97). From 1997, Dr. Herrero, became the European Commission, Directorate General Joint Research Centre (JRC). Within JRC Dr. Herrero has served i) as Head of Unit responsible for the Co-ordination of the Scientific Activities (1997-99); ii) as Authorizing Officer in charge of the overall management of Institute for Health and Consumer Protection (1999-2000).

In 2000, Dr. Herrero was selected by the Commission as the EU-Fellow for Academic year 2000-2001 at Yale University, where he taught the course "Science, Precaution and Policy-Making in the European Union.

In 2001, Dr. Herrero was promoted to become the JRC Director for Science Strategy and since 2002 to present, Dr. Herrero serves as the appointed Director of the JRC Institute for Reference Materials and Measurements, with the specific assignment to develop the Food Safety and Quality and the Bio-Analysis areas of JRC action.

Anna Hills, Ph.D.

Organization: **National Physical Laboratory (NPL)**
Teddington, Middlesex, UK

Presentation: **NMI Directors' Roundtable**

Biographies

James W. McLaren, Ph.D.

Organization: **National Research Council, Institute for National Measurement Standards (NRC, INMS) Ottawa, Ontario Canada**

Presentation: **NMI Directors' Roundtable**

Dr. James W. (Jim) McLaren is the Director General of the Institute for National Measurement Standards (INMS) of the National Research Council of Canada (NRC). He joined NRC as a Research Associate in 1976, shortly after completion of his Ph.D. in analytical chemistry at Queen's University, Kingston, Ontario. His research interests at NRC focused on development and characterization of instrumentation for inductively coupled plasma atomic emission spectrometry (ICPAES) and inductively coupled plasma mass spectrometry (ICPMS), with a particular interest in application of these two techniques to the determination of trace elements in environmental samples including both fresh and saline natural waters, marine sediments and biological tissues. McLaren's contributions to the development of ICPMS were recognized by the Canadian Society for Chemistry in 1988 with the award of the W.A.E. McBryde Medal for Analytical Chemistry and by the Spectroscopy Society of Canada in 1994 with the Barringer Spectroscopy Award.

From 1995 until 2000, McLaren served as Group Leader for Chemical Metrology in INMS. Many of the activities of this group are aimed to assist analytical laboratories in both the public and private sectors in assuring the accuracy of determinations of inorganic and organic contaminants in environmental samples. These activities include the development of reliable methodologies, the provision of certified reference materials and the co-ordination of laboratory proficiency testing exercises. He also became increasingly active in international metrology activities that are coordinated under the auspices of the International Committee of Weights and Measures. Dr. McLaren was appointed INMS Director, Chemical and Mechanical Standards in January 2000, assuming responsibility for INMS activities in chemical metrology, dimensional metrology, mass standards, acoustical standards and time and frequency metrology. Following a re-organization of INMS in late 2004, he successfully competed for his current position.

Marc W.H. Pieksma, Ph.D.

Organization: **NMi – Van Swinden Laboratory (NMi-VSL) Delft, The Netherlands**

Presentation: **NMI Directors' Roundtable**

Marc Pieksma, Ph.D., studied physics and astrophysics at the University of Nijmegen, the Netherlands, and received his Ph.D. in atomic physics at the University of Utrecht, also in the Netherlands. He held several post-doc positions, one of which was at the Oak Ridge National Laboratory in Tennessee, where he studied atomic collision processes relevant for nuclear fission.

In 1999 Dr. Pieksma joined NMi-VSL (the national standards institute of the Netherlands) as a scientist in the field of Ionizing Radiation. In 2003 he became manager of a group that included Electricity, Time and Frequency, Length, Vibration, Ionizing Radiation and Optics. Early 2008 Dr. Pieksma was appointed scientific program manager. In this capacity he is responsible for the contracts that NMi-VSL has with the Ministry of Economic Affairs. These contracts cover the maintenance of the national standards, their further development, research and key comparisons for a broad range of physical and chemical fields of metrology. In addition Dr. Pieksma is working on the strategic view of NMi-VSL for the coming years, which will also include biological metrology.

Robert Kaarls, Ph.D.

Organization: **Bureau International des Poids et Mesures (BIPM)/CIPM/CCQM Sèvres (Paris), France**

Presentation: **Moderator, NMI Directors' Roundtable**

Robert Kaarls is member and Secretary of the International Committee for Weights and Measures - CIPM, being the governing board over the Bureau International des Poids et Mesures - BIPM created by the Inter-Governmental Treaty of the "Metre Convention". He is also the President of the Consultative Committee for Metrology in Chemistry – CCQM.

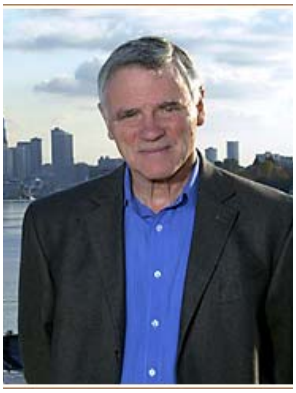
Formerly he has been Director of the National Metrology Institute of the Netherlands.

Robert Kaarls obtained his degrees in metrology, chemistry, electronics engineering and physics at the Delft Technical University. In 1967 he has been a guest worker at NBS (now NIST) in Washington DC and Gaithersburg, Md., USA. Robert has been a founding member of EUROMET (now EURAMET) and founding member and chairman and vice-chairman of the European Accreditation of Laboratories (EAL) and European Accreditation (EA).

Robert Kaarls is also a founding member and has been the first chairman of EURACHEM. Equally he is a founding member of CITAC.

As the Rapporteur of the CIPM working group on the statement of measurement uncertainty he wrote in 1980 the first document giving guidance to nowadays measurement uncertainty calculations and statements.

Lee Hood, Ph.D.



Organization: **Institute for Systems Biology (ISB)**
Seattle, WA, USA

Presentation: **Medicine Plenary Lecture**

"Improving Health Through Measurement of Complex Biological Signatures"

Dr. Hood's research has focused on the study of molecular immunology, biotechnology, and genomics. His professional career began at Caltech where he and his colleagues pioneered four instruments — the DNA gene sequencer and synthesizer, and the protein synthesizer and sequencer — which comprise the technological foundation for contemporary molecular biology. In particular, the DNA sequencer has revolutionized genomics by allowing the rapid automated sequencing of DNA, which played a crucial role in contributing to the successful mapping of the human genome during the 1990s. In 1992, Dr. Hood moved to the University of Washington as founder and Chairman of the cross-disciplinary Department of Molecular Biotechnology. In 2000, he co-founded the Institute for Systems Biology in Seattle, Washington to pioneer systems approaches to biology and medicine.

Most recently, Dr. Hood's lifelong contributions to biotechnology have earned him the prestigious 2004 Biotechnology Heritage Award, and for his pioneering efforts in molecular diagnostics the 2003 Association for Molecular Pathology (AMP) Award for Excellence in Molecular Diagnostics. In 2006 he received the Heinz Award in Technology, the Economy and Employment for his extraordinary breakthroughs in biomedical science at the genetic level. In 2007 he was elected to the Inventors Hall of Fame (for the automated DNA sequencer).
He has published more than 600 peer-reviewed papers, received 14 patents, and has co-authored textbooks in biochemistry, immunology, molecular biology, and genetics and is just finishing a text book on systems biology. In addition, he coauthored with Dan Keveles a popular book on the human genome project-The Code of Codes.

Dr. Hood is a member of the National Academy of Sciences, the American Philosophical Society, the American Academy of Arts and Sciences, the Institute of Medicine and the National Academy of Engineering. Indeed, Dr. Hood is one of 7 (of more than 6000) scientists elected to all three academies (NAS, NAE and IOM). Dr. Hood has also played a role in founding more than 14 biotechnology companies, including Amgen, Applied Biosystems, Systemix, Darwin and Rosetta. He is currently pioneering systems medicine and the systems approach to disease.

Biographies

Anna Palmisano, Ph.D.

Organization: **U.S. Department of Energy (DOE)**
Germantown, MD, USA

Presentation: **Energy Plenary Lecture**

"Obtaining Sustainable Energy from Biological Sources"

Dr. Anna Palmisano is the Associate Director of the Office of Science for the Office of Biological and Environmental Research in the U.S. Department of Energy (DOE). With an annual budget of more than $500 million, the Office of Biological and Environmental Research is the nation's leading program devoted to the study of biology and systems biology with applications to bio-energy production and use and to environmental remediation. The Office is also one of the nation's leading contributors to the study of global climate change.

She joined the Office of Science on March 3, 2008 from the U.S. Department of Agriculture's Cooperative State Research, Education, and Extension Service where she served as the Deputy Administrator for Competitive Programs. From 1998 to 2004, she was a Program Manager in the Office of Biological and Environmental Research, where she developed and managed a wide range of basic research programs including bioremediation, carbon cycling and sequestration, and genomics. Prior to joining DOE, she was a Program Manager and acting Division Director for Biomolecular and Biosystems Sciences and Technology in the Office of Naval Research.

Dr. Palmisano received a B.S. degree in Microbiology with high honors from the University of Maryland and the M.S. and Ph.D. degrees in Biology from the University of Southern California. She was an Allan Hancock Fellow at the University of Southern California and a National Research Council Fellow in planetary biology at NASA-Ames Research Center. She also worked as a staff microbiologist in the Environmental Safety Division of the Procter & Gamble Co. Her research interests have included sea ice microbial communities, stream ecology, microbial mats, bioremediation of organic pollutants, and landfill microbiology. She has led five research expeditions to Antarctica and published numerous papers in the field of microbial ecology.

Stephen Weisberg, Ph.D.

Organization: **Southern California Coastal Water Research Project Authority**
Costa Mesa, CA, USA

Presentation: **Environment Plenary Lecture**

"Understanding our Planet Through Linking Molecules to Ecosystems"

Dr. Stephen Weisberg is Executive Director of the Southern California Coastal Water Research Project (SCCWRP), a research agency that serves as the interface between science and water quality management in California. Dr. Weisberg's research emphasis is in design of environmental monitoring programs and developing next generation assessment tools. He is Chair of the Southern California Bight Regional Monitoring Steering Committee and is on the Governing Boards of the California Ocean Science Trust and the Southern California Coastal Ocean Observing System. He serves on advisory committees for numerous programs, including the State of California's Clean Beach Task Force, the California Ocean Protection Council Science Advisory Team, California's Water Quality Monitoring Council, the Alliance for Coastal Technologies Stakeholder Committee and the US EPA Board of Scientific Counselors. Dr. Weisberg received his undergraduate degree from the University of Michigan and his Ph.D. from the University of Delaware.

Biographies

James Thomas, Ph.D.

Organization: **Amgen, Inc.**
Seattle, WA, USA

Presentation: **Manufacturing Plenary Lecture**

"Obtaining Higher Quality Products Through Better Bioprocess Measurements"

Dr. Jim Thomas joined Amgen with the acquisition of Immunex in 2002 and currently leads the company's Process and Product Development group. He is responsible for teams at Amgen's Washington state facilities as well as Thousand Oaks, California. A pioneer in the biotechnology industry, Dr. Thomas has almost 25 years of experience in the field. Dr. Thomas joined Immunex Corporation in 1991 as a scientist in the Molecular Biology and Gene Expression department. While at Immunex, Dr. Thomas also served as the director of Cell Sciences and as vice president of Process Science. Prior to Immunex, Dr. Thomas spent seven years at Genentech in Cell Culture Research and Development. Dr. Thomas received his Ph.D. from Purdue University and completed a post-doctoral fellowship at MIT.

Pamela Ronald, Ph.D.

Organization: **University of California Davis**
Davis, CA, USA

Presentation: **Agriculture Plenary Lecture**

"Increasing Yield, Quality, & Safety in the World's Food Supply"

Pam Ronald is Professor of Plant Pathology and Chair of the Plant Genomics Program at the University of California, Davis, where she studies the role that genes play in a plant's response to its environment. Much of her work has focused on rice, a staple for 50% of the world's people. Her laboratory has genetically engineered rice for resistance to diseases and flooding, both of which are serious problems of rice crops in Asia and Africa. Her work has been published in Science, Nature, and other scientific periodicals and has also been featured in newspapers including The New York Times, The Wall Street Journal, and Le Monde and on National Public Radio.

Ronald received a bachelor's degree in biology from Reed College, a master of science degree in plant physiology from Uppsala University in Sweden, a master of science in biology from Stanford University, and a Ph.D. degree from the University of California, Berkeley. Ronald teaches a Genetics and Society course and a Sierra Nevada Flora field course.

Ronald chaired the American society of Plant biologists Public Affairs Committee from 2003-2006. She has served on numerous competitive grant panels for the NSF and the USDA. In 1996, Ronald founded the Genetic Resources Recognition Fund, a UC Davis program to share benefits of biotechnology with less developed countries.
Ronald was a Fulbright Fellow from 1984-1985, was named a Guggenheim Fellow in 2000 and from 2002-2005 served as an Honorary Scientist at the Rural Development Administration of Korea. She is an elected fellow of the American Association for the Advancement of Science, a 2006 Fellow at the Davis Humanities Institute and a 2008 Fellow of the Japan Society for the Promotion of Science. In 2008, she was awarded the Fulbright Distinguished Chair in the Natural Sciences and Engineering at the Hebrew University of Jerusalem.

Ronald has recently written a book with her husband, Raoul Adamchak entitled "Tomorrow's Table: Organic farming, genetic and the future of food" to be published by Oxford University Press in March 2008.

Raoul Adamchak, M.S.

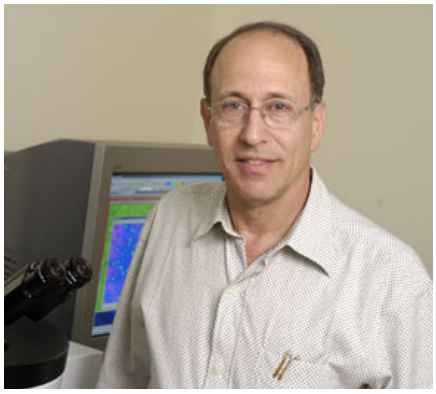
Organization: **University of California Davis**
Davis, CA, USA

Presentation: **Agriculture Plenary Lecture**

"Increasing Yield, Quality, & Safety in the World's Food Supply"

Raoul Adamchak has grown organic crops for twenty years, part of the time as a partner in Full Belly Farm, a private 150-acre organic vegetable farm that provided weekly produce boxes to over five hundred subscribers. Raoul has sold produce at three high-volume farmers' markets, and to wholesalers and retailers in the San Francisco Bay Area and Sacramento. He has also spent many hours discussing organic certification issues as a member and president of California Certified Organic Farmers (CCOF) and Board of Directors and inspected over one hundred organic farms for CCOF. He received a bachelor's degree in economics from Clark University and also received a master of science degree in International Agricultural Development from the University of California, Davis, where he also studied entomology. He now works at the University of California, Davis Student Farm, where he teaches organic production practices and manages a five-acre market garden.

Gary Brooker, Ph.D.



Organization: **The Johns Hopkins University Microscopy Center**
Rockville, MD, USA

Presentation: **Moderator, Plenary Session**

1968 Ph.D. (Pharmacology) University of Southern California
2007 - Present Research Professor, Department of Chemistry and Advanced Technology Laboratory, Whiting School of Engineering, Johns Hopkins University
2003 - Present Director Microscopy Center, Montgomery County Campus, Johns Hopkins University
1998 - 2007 Research Professor, Department of Biology, Johns Hopkins University
1996 -1998 Professor of Cell Biology, Department of Cell Biology, Georgetown University
1986 -1993 Member, Fidia-Georgetown Institute for the Neurosciences, Chief Lab of Ion and 2nd Messenger Imaging
1985 -2003 Founder and Chief Scientific Officer, Atto Instruments, Inc. (now Atto Bioscience, Inc.) Atto Bioscience, Inc. acquired by BD (Becton, Dickinson and Company) on July 1, 2004.
1981 -1998 Professor of Biochemistry and Molecular Biology, Department of Biochemistry and Molecular Biology, Georgetown University
1976 -1981 Director Core Program and Associate Director, University of Virginia Diabetes Research Center
1972 -1981 Associate Professor and Professor of Pharmacology, Department of Pharmacology, University of Virginia School of Medicine
1968 -1972 Assistant Professor of Medicine and Biochemistry, University of Southern California School of Medicine

Research Interests

- Mechanism of receptor independent hormone desensitization
- Mechanisms of resistance to chemotherapeutic agents
- Optical methods in microscopy

Biographies

Helen Parkes

Organization: **LGC**
Teddington, Middlesex, UK

Presentation: **Moderator, Plenary Session**

Helen has an extensive academic and commercial research background in BioSciences. Her academic research career focused on molecular diagnostics. As former Head of Lifesciences Research at LGC she won and managed a number of major research contracts encompassing the spectrum of clinical, environmental, food and forensic applications and underpinned by biomeasurement method development and validation.

In her current role as LGC Biotechnology Business Strategy Manager Helen has the broad remit of strategic scientific development of bioanalytical activities at LGC. She played a lead role in developing the Measurements for Biotechnology programme (www.mfb.prog.org.uk) for the UK Department of Innovation, Universities and Skills. She collaborates actively with the UK biotechnology and biopharmaceutical sectors, and is the LGC representative member of both the Pharmaceutical Analytical Sciences Group – Biopharmaceutical Working Party and the Bio Industry Association.

As LGC senior consultant for biomeasurement, Helen leads in international debate on biomeasurement comparability and standardisation. She is Chair of the international Comité Consultatif pour la Quantité del Matière (CCQM) BioAnalysis working group and chair of the nucleic acid review team of the Joint Committee for Traceability in Laboratory Medicine (IFCC/BIPM) working group on reference methods and materials. As a UK technical co-ordinator for the European Metrology Research Programme, she has championed Bioscience activity within the new Metrology for Healthcare projects. She has represented the UK at CEN and ISO level in developing standards for detection of genetically modified organisms and foodstuffs, and is an invited member of the Clinical Laboratory Standards Institute (CLSI) Area Committee on Molecular Methods.

Helen has edited a book on analytical molecular biology, published widely in the scientific press and is regularly invited to speak on Biomeasurement issues at both trade and scientific meetings.

Feng Cheng, Ph.D.

Organization: **University of Maryland Biotechnology Institute (UMBI) Center of Marine Biotechnology (COMB) Baltimore, MD USA**

Presentation: **Marine sources of bioenergy**

Hot Topics Session

Dr. Feng Chen, associate professor, Center of Marine Biotechnology, University of Maryland Biotechnology Institute. Dr. Chen received his Ph.D. in Marine Microbial Ecology in 1995 from the University of Texas at Austin. Dr. Chen has published more than 40 scientific papers and book chapters, covering both basic and applied aspects of marine microbiology and biotechnology. His research focuses on community structure and population dynamics of marine microbes which include viruses, bacteria and microalgae in the marine environment. He is widely recognized for his pioneering achievements in the viral genome research and microbial community proteomics. Dr. Chen has been invited to deliver multiple speeches at international conferences. He has served in several review panels for the federal funding agencies such as NSF and DOE. He has received research funds from NSF, DOE, NOAA, Sea Grants, and industries. Currently he is involved in developing several research programs related to algal biofuels.

Kathy Hudson, Ph.D.

Organization: **The Johns Hopkins University**
Washington, DC, USA

Presentation: **Personalized Medicine**

Hot Topics Session

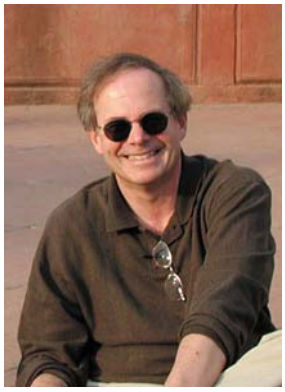
Dr. Kathy Hudson is the founder and Director of the Genetics and Public Policy Center and an Associate Professor in the Berman Institute of Bioethics, Institute of Genetic Medicine, and the Department of Pediatrics at The Johns Hopkins University. The Center was established in April 2002 with a grant from The Pew Charitable Trusts. Hudson founded the Center to fill an important niche in the science policy landscape and to focus exclusively on public policy issues raised by advances in human genetics. She leads the Center's efforts to address legal, ethical, and policy issues related to human reproductive genetic technologies, genetic testing quality and oversight, and public engagement in genetic research.

To inform genetic policy decisions, the Center publishes reports, peer-reviewed articles, and op-eds on the scientific, legal, ethical and policy issues raised by human genetic technologies. The Center also conducts extensive research on public attitudes about emerging genetic technologies and sponsors an array of activities and events to facilitate ongoing discussions about these topics.

Hudson serves on the AAAS Committee on Science, Engineering and Public Policy, the Institute of Medicine Roundtable on Translating Genomic Based Research for Health, the CDC Evaluation of Genomic Applications in Practice and Prevention Stakeholders Group, the Genome Canada Science and Industry Advisory Committee, the National Governors Association Health Information Protection Taskforce, the Social Issues Committee of the American Society of Human Genetics, the Guttmacher Institute Board of Directors, and the Annual Review of Genomics and Human Genetics Editorial Board. She has published articles about and is a frequent speaker on issues related to biotechnology, genetics, and public policy.

Before founding the Genetics and Public Policy Center, Hudson was the Assistant Director of the National Human Genome Research Institute (NHGRI) responsible for communications, legislation, planning and education activities. She provided focus and leadership in public policy and public affairs issues for NHGRI programs including the Human Genome Project, and spearheaded efforts to prevent genetic discrimination. Previously, Hudson served as a senior policy analyst in the Department of Health and Human Services and worked on Capitol Hill. She holds a Ph.D. in Molecular Biology from the University of California at Berkeley, an M.S. in Microbiology from the University of Chicago, and a B.A. in Biology from Carleton College.

Greg Petsko, Ph.D.



Organization: **Brandeis University**
Waltham, MA, USA

Presentation: **Synthetic Biology**

Hot Topics Session

Gregory A. Petsko is currently the Gyula and Katica Tauber Professor of Biochemistry and Chemistry and Chair of the Department of Biochemistry at Brandeis University. He is also the President of the American Society for Biochemistry and Molecular Biology. He was educated at Princeton University, where he majored in classical literature and chemistry. At Princeton, he was introduced to structural biology while he was working part-time in the laboratory of Prof. Robert Langridge. He then went to Oxford University, where he received his D. Phil. in Molecular Biophysics in 1973. Professor Petsko attended Oxford as a Rhodes Scholar, and did his dissertation work with Sir David C. Phillips on the three-dimensional structure of triosephosphate isomerase, an important protein in human metabolism. After a brief sojourn at the Institute de Biologie Physico-Chimique in Paris, where he worked on cryobiochemistry with Prof. Pierre Douzou, he accepted a position as Instructor at Wayne State University School of Medicine, where he was promoted to Assistant Professor in 1975. In 1979 he moved to M.I.T. as Associate Professor in the Department of Chemistry. He became full Professor of Chemistry at M.I.T. in 1985. In 1990 he moved to Brandeis as the Lucille P. Markey Professor in both the department of Chemistry and the department of Biochemistry. He was appointed to the Tauber chair in 1997, succeeding its first holder, Prof. William Jencks. Professor Petsko is also a member of the Rosenstiel Basic Medical Sciences Research Center at Brandeis, and assumed the position of Director of the Center in January of 1994, succeeding Prof. Hugh Huxley. He served as Director until December 2007. In addition to his academic pursuits, Professor Petsko is a founding scientist of ArQule, Inc., of Medford Massachusetts, one of the world's leading combinatorial chemistry companies.

Recently, Prof. Petsko and Prof. Ringe co-founded the Structural Neurology Laboratory, a revolutionary new concept that aims to develop new ways of preventing and treating neurologic diseases, especially Alzheimer's and Parkinson's Diseases. In connection with this, they were both appointed Adjunct Professors of Neurology at Harvard Medical School and the Brigham & Women's Hospital in Boston. The Structural Neurology Laboratory has already helped develop one new therapy, which is aimed at reducing the risk of Parkinson's Disease in Ashkenazi Jews and others who are carriers for Gaucher Disease.

George Pierce, Ph.D.

Organization: **Georgia State University**
Atlanta, GA, USA

Presentation: **Bioremediation/energy**

Hot Topics Session

Dr. Pierce received both his B.S. and Ph.D. degrees from Rensselaer Polytechnic Institute in 1969 and 1976 respectively. Since obtaining his Ph.D. in microbiology, he has spent his career in research and development. Prior to coming to Georgia State University eight years ago as Professor, and Director of Graduate Studies in Applied & Environmental Microbiology, Dr. Pierce spent the previous 25 years in industry. Over that period he has maintained a focus both in the scale-up of microbial processes, and in the attachment of microorganisms to surfaces. Dr. Pierce's has process development and scale-up experience related to: industrial, pharmaceutical, and environmental processes and products. With respect to microbial attachment, he has been involved in numerous environmental studies, and also with device associated nosocomial infections.

Since joining Georgia State University in 2000, Dr. Pierce has served the University in a number of capacities at the Department, College and University levels. Currently he is a member of the Faculty Senate, Member of the College Executive Committee, and a member of the College Promotion and Tenure Committee. Dr. Pierce also is active within the profession, and is currently President of the Society for Industrial Microbiology.

Dr. Pierce has authored numerous published papers and is the inventor on numerous US Patents.

Ann Reid, M.A.

Organization: **National Research Council NRC)**
Washington, DC, USA

Presentation: **Biothreats, Arising New Infectious Diseases**

Hot Topics Session

Ann Reid is a senior program officer for the Board on Life Sciences at the National Research Council. She has served as study director for a diverse set of reports including: The Ecological Impacts of Climate Change; The Role of Theory in Advancing 21st-Century Biology; The New Science of Metagenomics; Exploring the Role of Antiviral Drugs in Eradicating Polio; and Treating Infectious Diseases in a Microbial World. From 1989 to 2004 she was a research biologist at the Armed Forces Institute of Pathology where she applied the techniques of molecular biology to archival tissue samples. From 1995 to 2004 her research focused on the isolation and sequencing of the 1918 pandemic influenza virus from archived autopsy samples and lung samples from an Inuit victim who had been buried in permafrost. The genomic sequence of the virus was completed in 2004. The sequence has been used to try to determine why the 1918 epidemic was so severe, where the pandemic strain came from, and to test the effectiveness of influenza vaccines and antiviral drugs. Before turning to science she was a political analyst for the Japanese Embassy in Washington D.C. and the Organization for Economic Cooperation and Development in Paris. She holds a B.A. in environmental science from Simon's Rock College, a M.A. from the Johns Hopkins School of Advanced International Studies and has published more than 30 papers and reviews, and 7 book chapters..

Renee Rejio-Pera, Ph.D.

Organization: **School of Medicine**
Stanford University
Palo Alto, CA, USA

Presentation: **Stem-cell Therapies**

Hot Topics Session

Dr Reijo Pera is Director of the Stanford University Center for Human Embryonic Stem Cell Research and Education. The Center is a cross-disciplinary Center with the goal of promoting the development of human embryonic stem cells (hESCs), and alternative pluripotent cells such as reprogrammed induced-pluripotent stem cells (iPSCs), as a model for human development and genetics. The Center provides shared laboratory space, and an education curriculum, for collaborative efforts in stem cell biology, and embryology. The Center has received generous support from Stanford University, the School of Medicine, the Institute for Stem Cell Biology and Regenerative Medicine, and the California Institute for Regenerative Medicine (CIRM).

Dr Reijo Pera received her PhD from Cornell University and was a Damon Runyon Fellow in Human Genetics, at the Whitehead Institute at MIT, before joining the faculty at UCSF in 1997. She was recruited to Stanford University to direct the Center for Human Embryonic Stem Cell Research and Education in April 2007. She has received numerous awards for her work including the American Stem Cell Research Foundation Award, Outstanding Faculty Mentor Award, American Society for Reproductive Medicine Bruce Stewart Award, and was cited by Newsweek magazine as one of twenty influential women in the USA for her work in understanding human development. Her laboratory is focused on understanding how cell fate decisions are made in the embryo, in particular how the germ cell lineage (which gives rise to eggs and sperm) is allocated from the somatic lineages (which comprise the rest of the body). She has derived several novel hESC and iPSC lines suitable for genetic study of cell fate decisions, including the differentiation of somatic and germ cell lineages. She has also identified novel genes that function in human germ line development.

Joseph Spence, Ph.D.

Organization: **Agricultural Research Service**
U.S. Department of
Agriculture (USDA)
Beltsville, MD, USA

Presentation: **Food and Agricultural Needs**

Hot Topics Session

Joseph T. Spence, Ph.D. joined the Agricultural Research Service (ARS), USDA, in 1993 when he was appointed Director of the Beltsville Human Nutrition Research Center, Beltsville, Maryland. This is the oldest, and under his direction, had become the largest of the Federally-funded human nutrition research centers. The center is actively conducting research on nutrition and immunology, phytonutrients, food composition, nutrition monitoring, and the role of individual nutrients in maintaining health.

He received his doctoral degree in nutritional biochemistry from Cornell University in 1977 and was an NIH Postdoctoral Fellow at the McArdle Laboratory for Cancer Research of the University of Wisconsin, Madison. He was a Health Scientist Administrator at the National Heart Lung and Blood Institute of NIH. He was Professor of Biochemistry and Associate Dean for Research and Graduate Studies at the School of Medicine of the State University of New York at Buffalo prior to his arrival at Beltsville. His research interest is in the regulation of gene expression in liver in response to dietary and hormonal influences.

In August, 2004, he was appointed Deputy Administrator for Nutrition, Food Safety and Quality where he oversaw the ARS national programs related to food and nutrition as well as value added products, product quality and bio-based products. In February 2008, he was appointed Director of the ARS Beltsville Area, which includes the Beltsville Agricultural Research Center and the U. S. National Arboretum.

Robert Wall, Ph.D.

Organization: **Agricultural Research Service**
U.S. Department of
Agriculture (USDA)
Beltsville, MD, USA

Presentation: **Transgenic Animals**

Hot Topics Session

Following a career as an electrical engineer, first working for Lockheed Missiles and Space Company and then for NASA as primary test conductor and electrical engineer of the Altitude Simulation System for testing the Lunar Excursion Module (LEM) decent stage engine he received a Ph.D. in physiology from Cornell University and joined the United States Department of Agriculture's Agricultural Research Service in 1981.

For the past 27 years Dr. Wall has focused his attention on developing methods for introducing new genes into animals as a tool for scientific discovery and as a means of improving livestock production efficiency and food quality and safety. Dr. Wall discovered a method to visualize pronuclei in living cattle or swine embryos. As a direct result of this discovery, the ARS-University of Penn. team was able to produce the first transgenic farm animals. Dr. Wall's lab was the first to demonstrate the feasibility of producing pharmaceuticals in the milk of sows through genetic engineering. To study the mechanism by which foreign genes integrate into mammalian genomes, Dr. Wall was the first to develop a means of detecting genes in embryos. The same basic approach is now being applied to human embryos to detect genetic diseases. Dr. Wall demonstrated that including matrix attachment region (MARs) sequences in gene constructs effectively doubled the efficiency of producing functional transgenic animals. Dr. Wall's lab was also the first to demonstrate the feasibility of using the urinary bladder as a bioreactor organ. Also, in collaboration with NIH colleagues, Dr. Wall demonstrated that a synthetic genetic switch introduced in to an animal can be used to turn off an oncogene, thus reversing the hyperplasia caused by a virally induced cancer. Most recently, Dr. Wall's lab produced the first genetically engineered cattle that are resistant to infection by Staphylococcus aureus, the most intractable cause of mastitis, a disease that cost the dairy industry over a billion dollars a year. Dr. Wall and colleagues have published over a 100 peer-reviewed scientific papers.

Keith Yamamoto, Ph.D.

Organization: **University of California San Francisco San Francisco, CA USA**

Presentation: **Complex Biological Systems**

Hot Topics Session

Dr. Keith Yamamoto, Ph.D., is Professor of Cellular and Molecular Pharmacology and Executive Vice Dean of the School of Medicine at the University of California, San Francisco. He has been a member of the UCSF faculty since 1976, serving as Director of the PIBS Graduate Program in Biochemistry and Molecular Biology (1988-2003), Vice Chair of the Department of Biochemistry and Biophysics (1985-1994), Chair of the Department of Cellular and Molecular Pharmacology (1994-2003), and Vice Dean for Research, School of Medicine (2002-2003). Dr. Yamamoto is an acknowledged leader in research focused on the mechanisms of signaling and gene regulation by intracellular receptors, which mediate the actions of several classes of essential hormones and cellular signals. Dr. Yamamoto was a founding editor of Molecular Biology of the Cell, and serves on numerous editorial boards and scientific advisory boards, and national committees focused on public and scientific policy, public understanding and support of biological research, and science education; for the National Academy of Sciences, he sits on the Committee on Publications and chairs the Board on Life Sciences. Dr. Yamamoto has long been involved in the process of peer review and the policies that govern it at the National Institutes of Health, serving as Chairman of the Molecular Biology Study Section, member of the NIH director's Working Group on the Division of Research Grants, Chair of the Advisory Committee to the NIH Center for Scientific Review (CSR), member of the NIH Director's Peer Review Oversight Group, member of the CSR Panel on Scientific Boundaries for Review, member of the Advisory Committee to the NIH Director, and Co-Chair of the Working Group to Enhance NIH Peer Review. Dr. Yamamoto was elected as a member of the American Academy of Arts and Sciences in 1988, the National Academy of Sciences in 1989, the Institute of Medicine in 2003, and as a fellow of the American Association for the Advancement of Sciences in 2002.

Craig Jackson, Ph.D.

Organization: **Consultant**
San Diego, CA, USA

Presentation: **Moderator, Hot Topics Session**

Craig M. Jackson, Ph.D. is retired, but continues to serve as an occasional consultant and participant in volunteer committees involved in improving the quality of laboratory diagnostics. Jackson has served as president and director of research and development for Reagents Applications Inc. and as scientific director in the Southeastern Michigan Region of the American Red Cross Blood Services (Detroit) where he was also an adjunct professor of biochemistry at Wayne State University. He was a professor of biological chemistry and an associate professor of internal medicine at Washington University School of Medicine (St. Louis) prior to joining the American Red Cross. He has been a visiting professor at Kyushu University (Fukuoka, Japan) and the University of Hawaii. Jackson is a member of the editorial advisory board for IVD Technology magazine. He has written more than 75 original papers and contributed to more than 30 textbooks or monographs. He is the team leader for quality system development for the Joint Committee for Traceability in Laboratory Medicine (JCTLM), an organization founded by the International Federation of Clinical Chemistry and Laboratory Medicine (IFCC), the Bureau International des Poids et Mesures (BIPM), and the International Laboratory Accreditation Cooperation (ILAC). He currently serves on the Ad Hoc Advisory Committee on Heparin of the United States Pharmacopeia. Jackson received a BS degree from Washington State University (Pullman, WA) and a PhD from the University of Washington (Seattle). He is a fellow of the National Academy of Clinical Biochemistry (Washington, DC) and a fellow of the American Association for the Advancement of Science (Washington, DC).

Exhibitors

Booth #1
Waters

Booth #2
USP

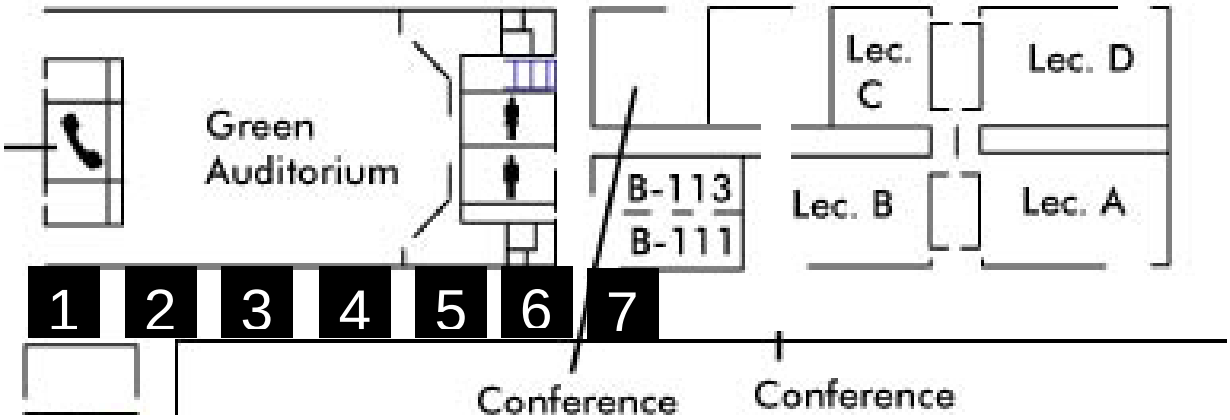
Booth #3
IEEE

Booth #4
Energetics

Booth #5
AARDA

Booth #6
NIST

Booth #7
Montgomery County
Department of Economic Development



Location

The conference is being held at the National Institute of Standards and Technology, Administration Building (101), Red Auditorium and various Lecture Rooms, Gaithersburg, Maryland. Gaithersburg is located 40km north of Washington, DC. No smoking is permitted in the building.

Coffee Breaks and Lunch

Refreshments will be provided during morning, mid-morning, and mid-afternoon breaks. Lunch will also be provided each day.

All participants are invited to a reception at 6:30p.m. on Monday, October 21, being held at the conference hotel, Marriott Gaithersburg Washingtonian Center, 9751 Washingtonian Blvd., Gaithersburg, MD 20878.

All participants are invited to a Social Hour and Barbeque at 6:00p.m. on Tuesday, October 22, being held at Smokey Glen Farm Barbequers, 16407 Riffleford Road, Gaithersburg, MD 20878, The barbeque is being **sponsored by the Montgomery County Maryland's Department of Economic Development**.

Conference Hotel

Marriott Gaithersburg Washingtonian Center
9751 Washingtonian Blvd.
Gaithersburg, MD 20878
Phone: 301-590-0044

Department of
Economic Development
SMARTMontgomery.com

Communications

The telephone number for contact is 301/975-3881 or 301/975-2858. Attendees will not be called out of the meeting to receive telephone calls, except in emergencies. Messages can be received at the registration desks.

General Information

Staff at the registration desk will be pleased to assist you. They are able to answer questions about the conference, transportation, or sightseeing.

Miscellaneous

The following services are located in the basement of the NIST Administration Building. Please take the elevator from the main lobby. **Newspaper and Sundry Stand**, adjacent to the elevators in the basement, hours: 8a.m.-4:30p.m. **SEBA Gift Store**, down the hallway from the Sundry Stand, on the left.

Emergency Procedures

In the event of fire – the evacuation bell will sound continuously. Please evacuate the building through the nearest exit and assemble in the parking lot. Do not re-enter the building until the all-clear signal is given.

In the event of dangerous weather conditions – the tornado siren will sound. Please use the nearest stairwell and go down one flight to the basement of the building. Do not stand near exterior windows. Remain in the basement until the all-clear signal is given.

Transportation

Security emergencies – follow the instructions of emergency services personnel.

Transportation

The headquarters site of the National Institute of Standards & Technology is located near Gaithersburg, Maryland, just off Interstate Route 270, about 25 miles (40 kilometers) from the center of Washington, D.C. NIST provides shuttle service from the Shady Grove Metro (subway) station.

Area shuttle and taxi services offer transportation to/from the region's airports. Call for reservations.

Ground Transportation
There are plenty of shuttles and taxis available at the airport to take you to the Gaithersburg, MD area. Gaithersburg, MD is approximately 33 miles from Dulles Airport, 29 miles from Reagan National Airport, and 50 miles from Baltimore-Washington Airport. Shuttle and taxi rates can range from $40.00 - $75.00.

A taxi or shuttle can be arranged for transportation to Baltimore-Washington or Dulles Airport. Groups of passengers going to either BWI or Dulles can be grouped together in van shuttles for a lower fee. Area transportation:

Super Shuttle: 800-258-3826 ..... http://www.supershuttle.com
Washington Flyer Shuttle/Cab: 888-927-4359 ..... http://www.washfly.com
Action Taxi (301) 840-1222
Barwood Cab (301) 984-1900
Regency Cab (301) 990-9000
Montgomery Taxi Cab (301) 926-9300

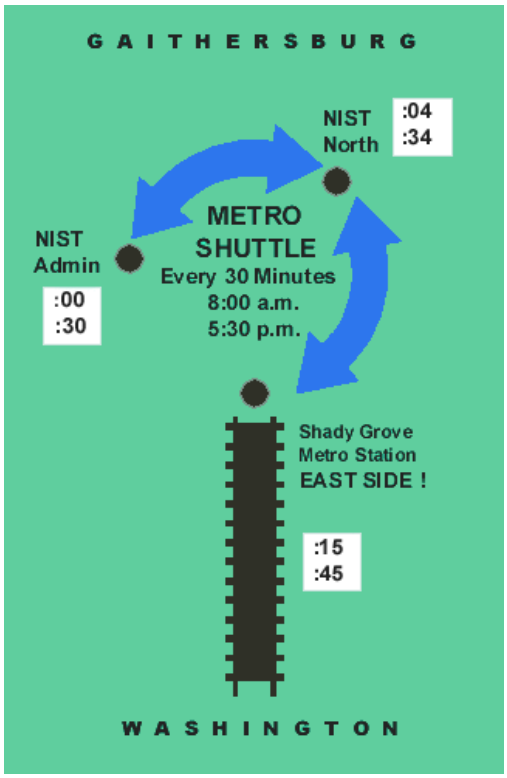
Please see the transportation schedule for the times of arrivals/departures.

NIST Metro Shuttle

NIST provides shuttle service for official visitors and staff to and from the Shady Grove Metro Station. Visitors using Metro can meet the NIST shuttle at the east side "Kiss & Ride" area of the Shady Grove Metro Station at 15 and 45 minutes past the hour from 8:00 am to 5:30 pm. The shuttle departs from the front of the NIST Administration Building (101) on the hour and half hour. No reservations are required. DO NOT BE LATE.

The shuttle operates Monday through Friday except on federal holidays.

The ride between NIST and the Shady Grove Metro Station takes approximately 15 minutes, depending on traffic conditions.



Directions NIST:

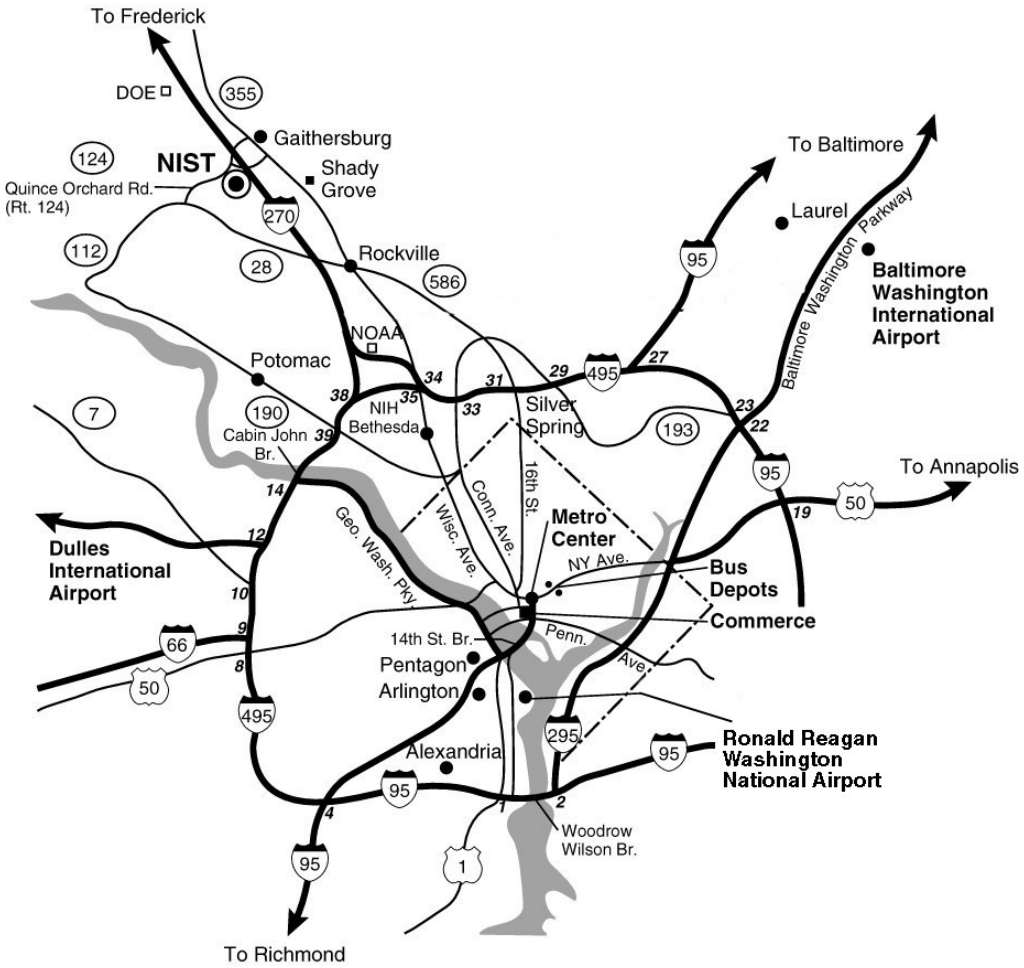
From northbound I-270 take Exit 10, Route 117 West, Clopper Road. Bear right at the first light onto Clopper Road/West Diamond Avenue. At the next light, turn left onto the NIST grounds.

From southbound I-270 take Exit 11, Route 124, Montgomery Village Avenue/Quince Orchard Road. Bear right at the first light onto Route 124 West, Quince Orchard Road. After you merge onto Rt. 124, Quince Orchard Road, turn left at the second light onto Route 117, West Diamond Avenue. Turn right at the first light onto NIST grounds.

Directions to the Hotel:

Traveling northbound or southbound on I-270 take Exit 9B (Sam Eig Highway West). Take the first left onto Fields Road. Take the first left onto Rio Boulevard, which becomes Washingtonian Boulevard. Pass the Rio complex and the hotel will be on your left.

Route Map



Metro System Map

A special thanks are given to the Conference Steering and Organizing Committee:

Conference Co-Chairs

Jennie Hunter-Cevera, UMBI
Willie May, NIST

Organizing Committee

Michael Amos, NIST
Jason Boehm, NIST
Judith Britz, Britz Consulting
Gary Brooker, Johns Hopkins University Microscopy Center
Angela Ellis, NIST Conference Program
William Heetderks NIBIB/NIH
Fred Holland, Hollings Marine Laboratory/NOAA
Craig Jackson, Consultant
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Frederick Razzaghi, Consultant
Theodore Roumel, UMBI
James Serum, Scitek Ventures
Tamas Torok, Lawrence Berkeley National Laboratory
Keith Webber, FDA

Contact Information

Contact Information

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hunterce@umbi.umd.edu

Willie E. May, Director, Chemical Science and Technology Laboratory, NIST
willie.may@nist.gov

Conference Website:

www.cstl.nist.gov/Biosciences.html

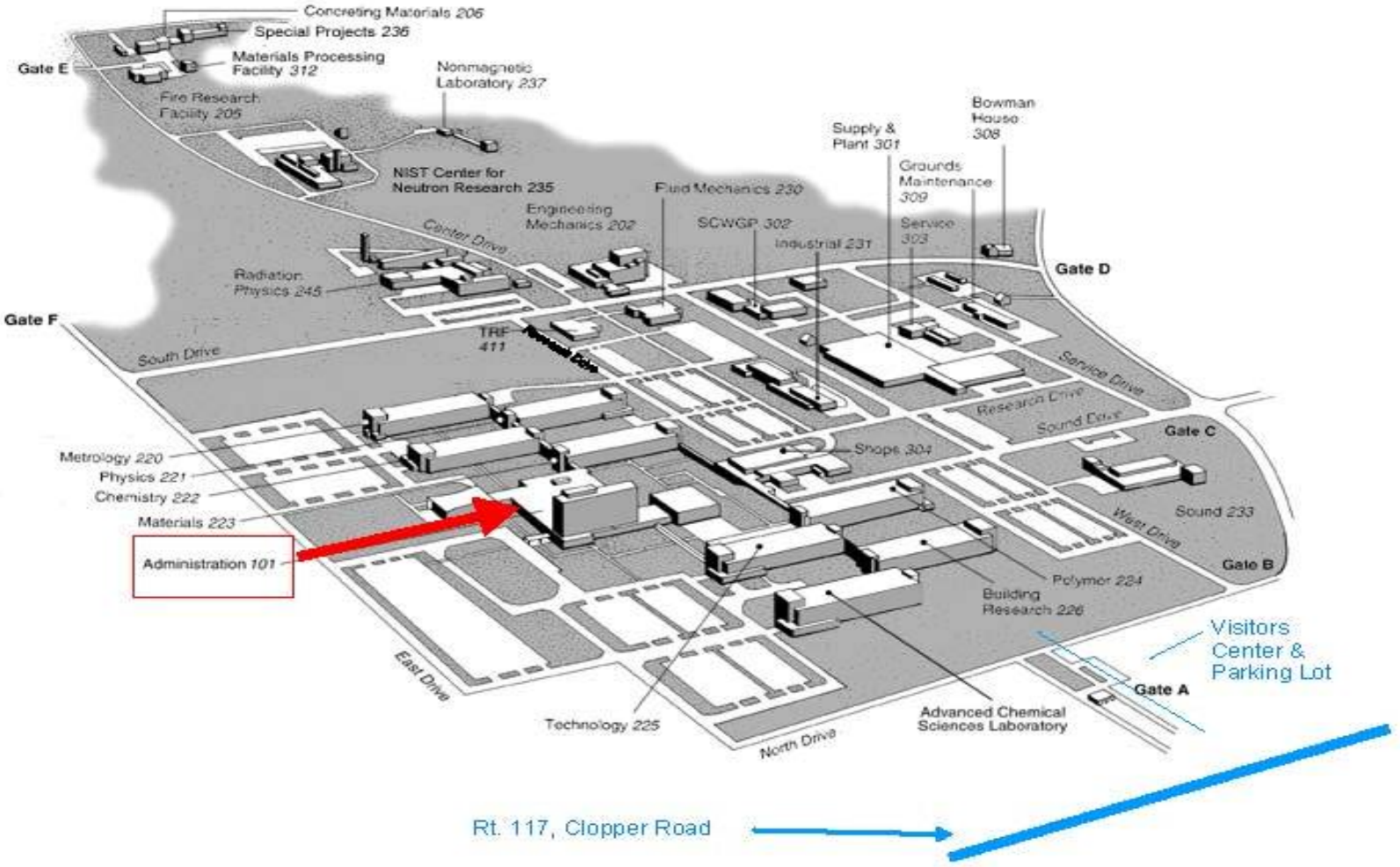
Conference Email:

Barriersworkshop@nist.gov

Facility

National Institute of Standards and Technology
100 Bureau Drive
Administration Building, 101
Gaithersburg, MD 20899
USA
www.nist.gov

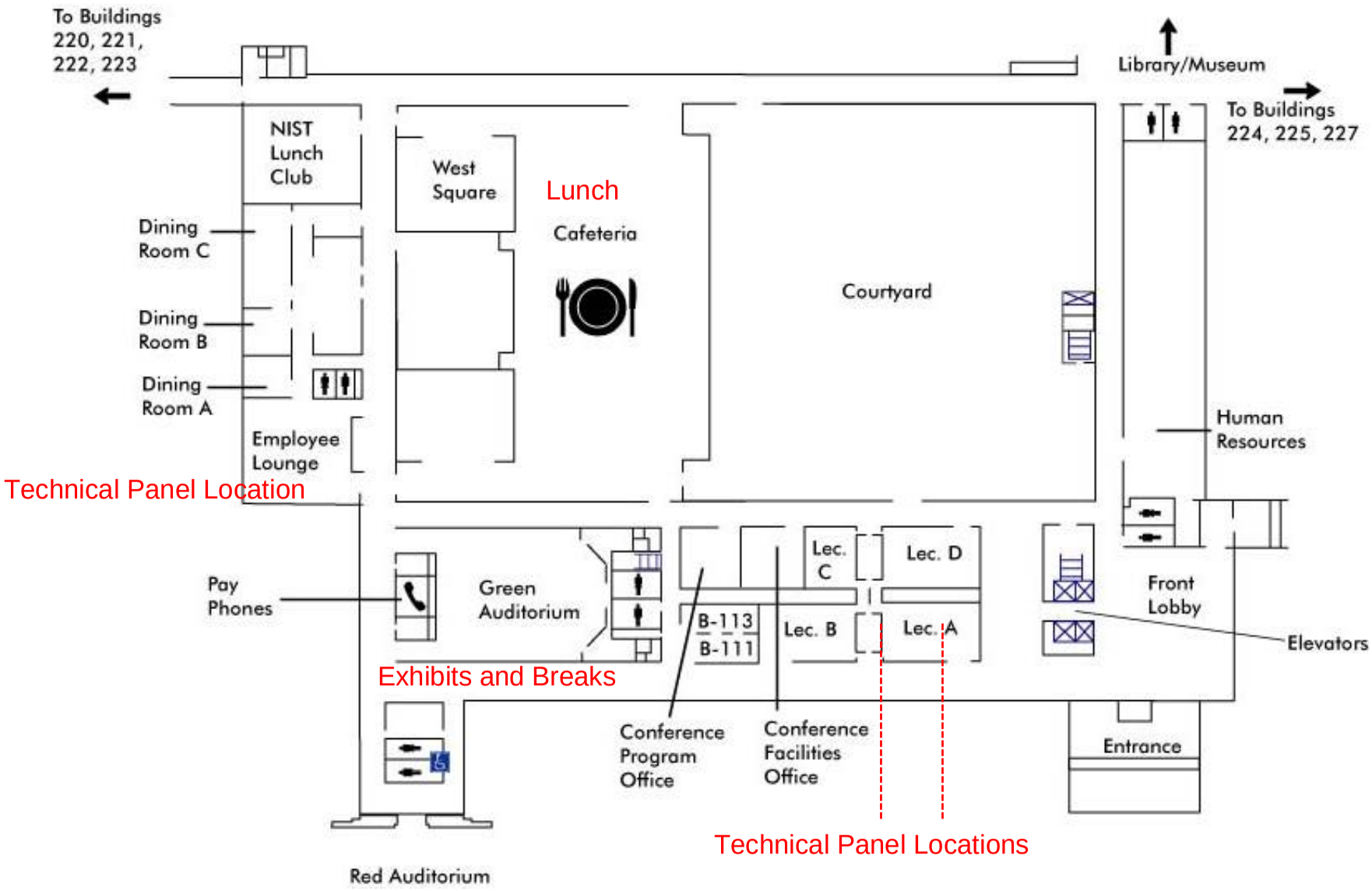
NIST Campus Map



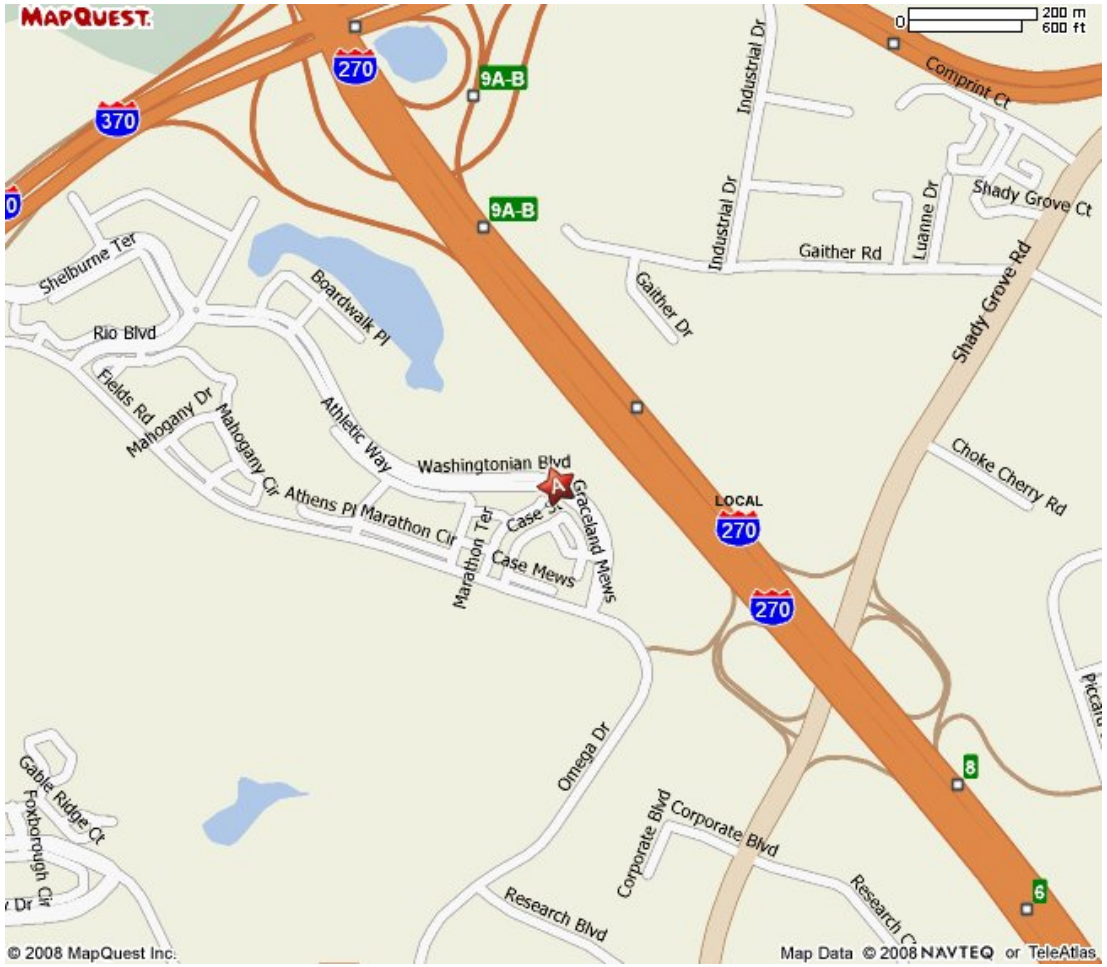
Maps

Maps

NIST Conference Locations



Washingtonian Marriott Map and Directions



Maps

Smokey Glen Farm Map and Directions

Total Time: 9 minutes Total Distance: 4.02 miles

A: 100 Bureau Drive, Gaithersburg, MD 20899-0003

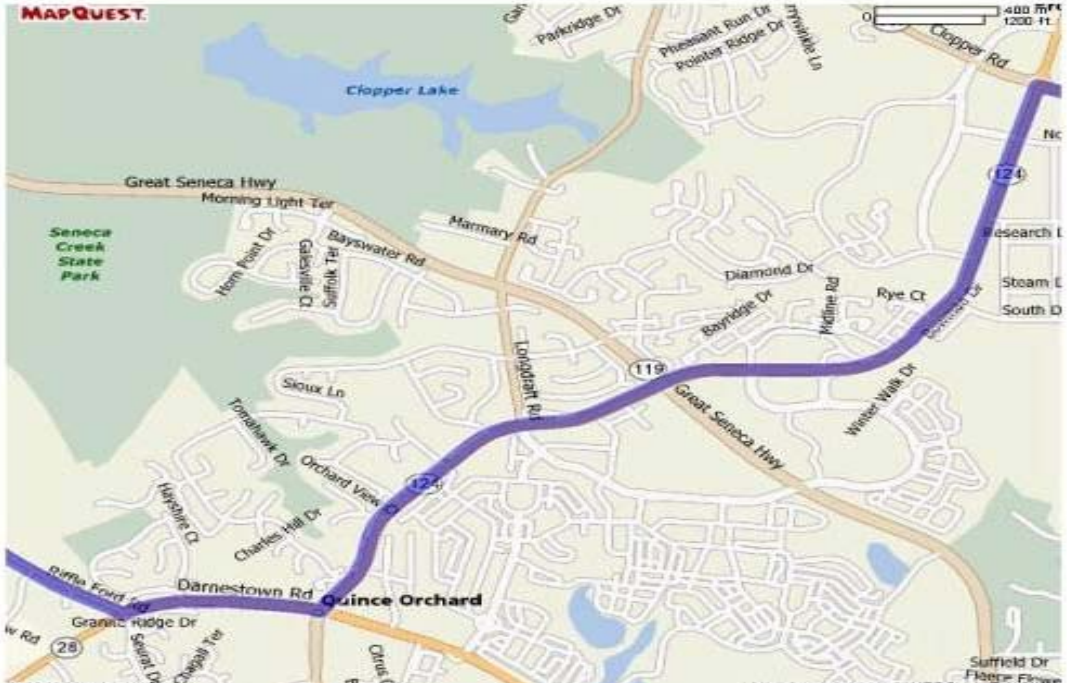
START	1: Start out going WEST on MD-117/W DIAMOND AVE toward BUREAU DR.	0.2 mi
WEST 124	2: Turn LEFT onto MD-124 W/QUINCE ORCHARD RD.	2.7 mi
WEST 28	3: Turn RIGHT onto DARNESTOWN RD/MD-28 W.	0.5 mi
	4: Turn RIGHT onto RIFFLE FORD RD.	0.7 mi
END	5: End at 16407 Riffle Ford Rd Gaithersburg, MD 20878-2148	

B: 16407 Riffle Ford Rd, Gaithersburg, MD 20878-2148

Total Time: 9 minutes Total Distance: 4.02 miles

Smokey Glen Farm

Barbequers, Inc.



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