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Series: Bromley, D. Allan, Files
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OA/ID Number: 62014
Folder ID Number: 62014-008

Folder Title:
Invitation: General (5) [3 of 3] [1992]

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"INVITATION FOR DR. BROMLEY"

TYPE: INVITATION

DOCUMENT NUMBER: 9200065

ORIGINATOR: 02

SPEECH: YES NO

FROM: JOHNSTON, James D.: GENERAL MOTORS CORPORATION

DATE OF EVENT: 01/22/92

THRU:

TENTATIVE DATES:

LOCATION OF EVENT: GM TECHNICAL CENTER, WARREN, MICHIGAN

TIME OF EVENT:

SUBJECT: AN INVITATION TO ATTEND THEIR TECHNOLOGY TRANSFER
"GARAGE SHOW" FEATURING ELEVEN U.S. NATIONAL
LABORATORIES.

RSVP: 01/23/92

CONTACT PERSON:

CONTACT NUMBER:

INVITATION ACCEPTED?

YES

NO

COPIES TO: INDUSTRIAL

REMARKS:

DATE OF LETTER: 01/07/92

DATE RECEIVED: 01/09/92

FILE: 0 - INVITATION

00657m

RECEIVED

General Motors Corporation

JAMES D. JOHNSTON
VICE PRESIDENT

02 JAN 9 4 9:28

January 7, 1992

OSTP
MAIL ROOM

The Honorable D. Allan Bromley
Assistant to the President for
Science & Technology
Director, Science & Technology Policy
The White House
Washington, D.C. 20500

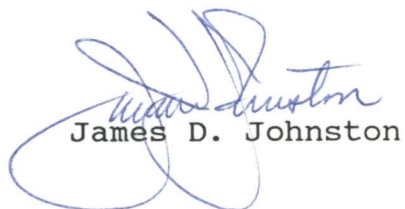
Dear Dr. Bromley:

We would like to invite you or your designated representative to attend the General Motors technology transfer "garage show" featuring eleven U.S. National Laboratories. This event will take place at the Design Dome, G.M. Technical Center, Warren, MI on January 22-24, 1992. The event is designed to promote a better understanding of technical capabilities and requirements between G.M. and the Federal Labs. We expect that several thousand G.M. and over one hundred federal government employees will attend.

Details about this event are enclosed. I would suggest that you consider arriving on the afternoon of Wednesday, January 22, attend the reception and dinner that evening, visit the Design Dome the next morning, and depart sometime on the twenty-third. Dr. Lester Thurow, Dean of the MIT Sloan School of Management, will be the keynote speaker at the reception/dinner on the twenty-second.

We will contact your office to determine if any additional information would be helpful. I hope your schedule will permit you to join us.

Sincerely,



James D. Johnston

Enclosure

Published by the GM T.E.A.M. Center
6490 East 12 Mile Road Warren, Michigan 48090-9000 8-227-2701 (313-947-2701)

Washington Technology

WTN #22

Newsletter

December 9, 1991

Announcing:

"Teaming For National Competitiveness"

A National Lab Exhibition

January 23rd — 24th 1992,

General Motors Design Dome

Please Distribute To: _____ ☐

_____ ☐

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_____ ☐

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SPECIAL EDITION

Attending National Labs:

- NIST • Sandia • Los Alamos • Oak Ridge • Argonne •
- Lawrence Livermore • Pacific Northwest • Idaho Engineering •
- Federal Lab Consortium • Wright Patterson Labs •

Teaming For National Competitiveness



January 23rd and 24th, 1992 • GM Design Dome

NATIONAL LABORATORIES & INDUSTRY

Don't miss this opportunity to discover the impressive array of technical resources available within the National Laboratory system and how to leverage them to enhance GM's competitive position!

Washington Office
Detroit Office

• Jack Simon •
• Rich Marczewski •

8-447-5087 (202-775-5087)
8-227-2704 (313-947-2704)

National Lab Technology Exhibit

Beginning at 8:00 AM on Thursday, January 23, 1992, nine of America's largest, most prestigious National Laboratories will exhibit displays in the GM Design Dome highlighting some of their respective technological strengths.

The exhibit, entitled *"Teaming for National Competitiveness,"* is an AES-GMR sponsored effort to enhance awareness of the wealth of technological resources which exist within the federal lab system, to familiarize GM'ers with the current mechanisms available for leveraging these resources, and to encourage the exploration of opportunities for collaborative R&D between GM and the Labs.

Access to the unparalleled technical capabilities of the Labs has been substantially opened up during the last decade by Congressional legislation designed to improve the competitive posture of U.S. industry.

Once focused almost exclusively on R&D related to national security, the mission of the National Labs—comprised of over 700 separate labs, 100,000 highly talented scientists and engineers and an annual budget in excess of \$22 billion—has now been expanded to include the responsibility to assist the private sector in broadening its technology base and improving the quality, cost, customer satisfaction, and speed-to-market of its goods and services by moving new knowledge from federal research laboratories into the development of new products and processes.

Several fundamental similarities exist between the federal R&D "industry" and the auto industry, including the shared need to deliver on qual-

ity, cost, fast-to-market, and customer satisfaction. GM simply can't afford the expense of engaging in redundant research, and since common ground exists, we must accept the challenge to build on it...*and we must move quickly and aggressively...the Labs work on a first-come, first-served basis, and their agenda is filling up rapidly.*

During this past year a team of GM'ers based in Washington D.C. and the Warren, Michigan TEAM Center have visited many of the leading National Labs to assess their potential to provide GM-relevant tech leveraging opportunities.

The results of these scouting missions, published in various past issues of the WTN, have created a tremendous demand within GM for more information on the National Labs.

"Teaming for National Competitiveness" was organized to address this demand in a cost-effective manner. It is a unique opportunity to "pick the brains" and "talk shop" with some of the brightest technical minds our nation has to offer, establish important working contacts at a number of the world's finest scientific laboratories, and accelerate the process of eliminating technical barriers impeding GM's progress in its drive to become the most competitive car and truck manufacturer in the world.

Presentations On "How To Leverage" Federal Technical Resources

Several times a day during the two-day exhibit, a presentation will be delivered on the Design Dome stage to brief the GM audience on the various legal and procedural mechanisms which currently exist to facilitate the leveraging of federal resources, including:

WASHINGTON TECHNOLOGY NEWSLETTER

- Cooperative Research and Development Agreements (CRADAs)
- Cost-Sharing Agreements
- Licensing
- Contract R&D Agreements
- Scientist & Engineer Exchanges
- Technology Maturation Process
- Use of government facilities
- Advanced Manufacturing Initiative (AMI)
- Advanced Technology Program (ATP)
- Consortium
- Regional Manufacturing Technology Centers (MTCs)

Special National Laboratory Presentations

Five of the attending National Laboratories will deliver special detailed presentations on their capabilities during the "Teaming" event and interested GM'ers are invited to attend. The schedule for these special presentations is as follows:

Thursday, January 23, 1992

Sandia	8am - Noon	1/23/92
Argonne	1pm - 5pm	1/23/92

Friday, January 24, 1992

Idaho	8am - Noon	1/24/92
Pacific Nwst.	1pm - 5pm	1/24/92

These presentations will be held in Classroom #3 at the TEAM Center (6490 E. 12 Mile Rd—across from the Tech Center)

Lawrence Livermore will also make a Special Presentation at a time and place yet to be determined.

Seating in Classroom #3 at the TEAM Center will be limited to approximately 100 people so plan on arriving early.

GM Government Laboratory Brochures

This Special Edition of the WTN includes GM-created brochures which provide background information on a number of the National Labs attending the "Teaming" exhibition, a sampling of GM-relevant projects currently being pursued at these Labs, and the name and telephone numbers of the Lab people involved in these projects.

The brochures were included to provide you with a better understanding of the potential leveraging opportunities which exist for GM within the federal lab system.

GM Technical Center Map

Also included in this Special Edition is a map of the Technical Center highlighting the location of the GM Design Dome, the TEAM Center, and the GMR Auditorium and the GM Education and Training Center where *Teaming for National Competitiveness* GM "Needs" conferences (discussed on the next page) will be held.

National Lab Exhibition Schedule

The schedule for the *Teaming for National Competitiveness* exhibition is as follows:

Thursday, January 23, 1992
8:00 AM to 5:00 PM

Friday, January 24, 1992
8:00 AM to 5:00 PM

The Design Dome exhibition and Argonne presentation in the TEAM Center will be open to all active GM employees. (GM identification required)

WASHINGTON TECHNOLOGY NEWSLETTER

Teaming for National Competitiveness "Needs" Conference:

*"Identifying And Overcoming Technological
Hurdles Associated With Fulfilling Broad
Social Mandates Related To The Auto Industry."*

Beginning at 8:30 AM on Wednesday, January 22, 1992, GM will host a conference in the Education & Training Center to brief National Lab attendees on some of the technological hurdles the auto industry must overcome in the near future in order to address a broad spectrum of social concerns related to the automotive industry.

"Needs" Conference Schedule & Agenda

8:30 - 9:15	Kick-off by Don Runkle
9:15 - 10:15	Safety
10:15 - 10:30	Break
10:30 - 11:30	Energy
11:30 - 12:30	Ultra Reliability
12:30 - 1:30	Lunch
1:30 - 2:30	Environment
2:30 - 3:00	Break
3:00 - 4:00	Manufacturing Validation
4:00 - 5:00	Agile Manufacturing

Special GMR Presentation To The National Labs:

General Motors Research group will make a special 4-hour presentation to the National Labs to brief them on some of ongoing research projects they are currently involved with. The presentation will take place on Tuesday, January 21, 1992 in the GMR Auditorium from 1-5pm.

**If you don't already receive
the Washington Technology Newsletter
but would like to, copy this form and send it to:**

**TEAM Center
c/o Dianne Howey
6490 East 12 Mile Rd.
Warren, MI 48090-9000
FAX: 8-227-2715**

☐ **ADD ME TO THE MAILING LIST**

Name: _____

Title: _____

Division/Plant/Staff: _____

Address: _____

City, State, Zip: _____

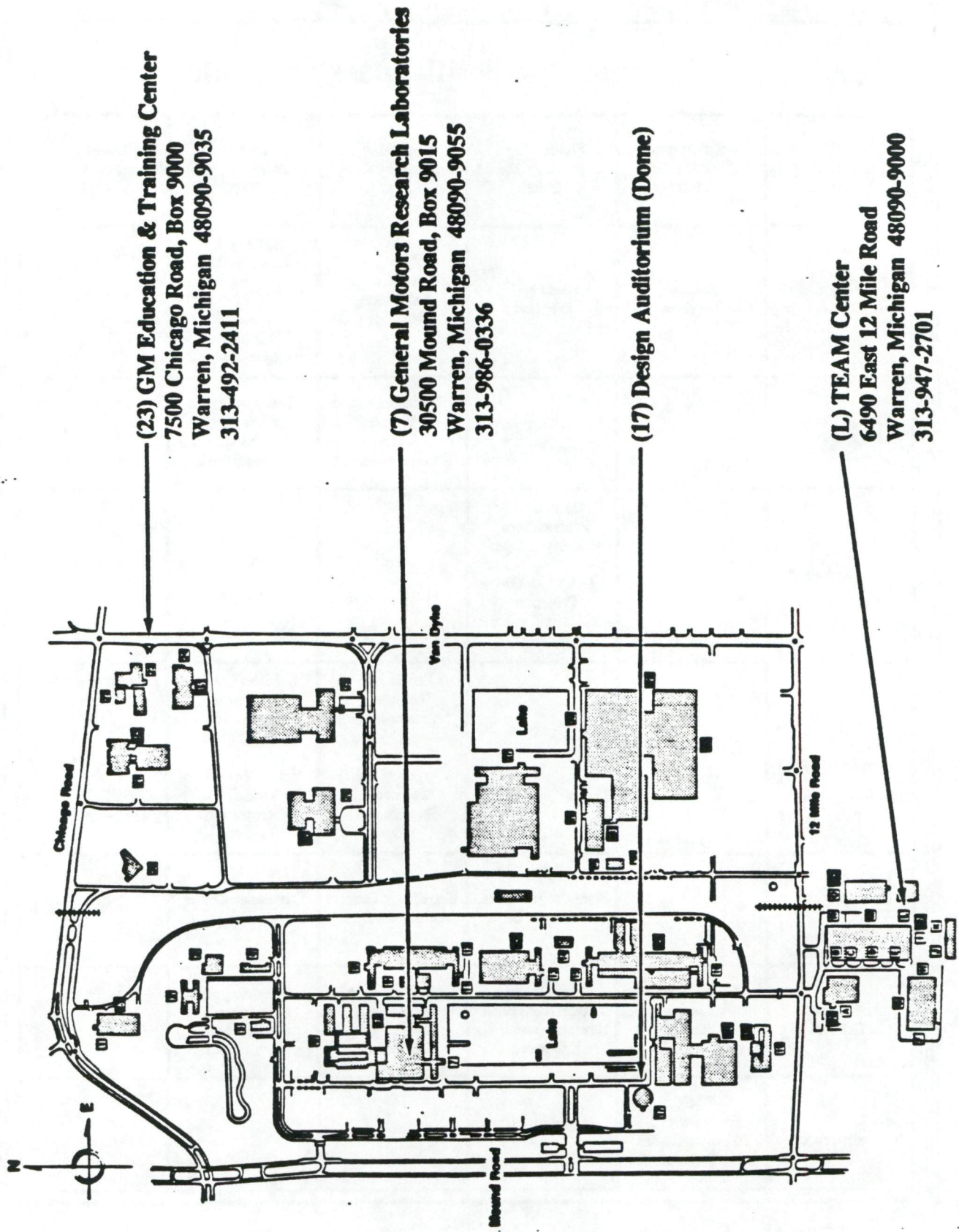
Telephone Number: _____

WASHINGTON TECHNOLOGY NEWSLETTER

Teaming for National Competitiveness Schedule Of Events

	Tuesday January 21 1992	Wednesday January 22 1992	Thursday January 23 1992	Friday January 24 1992	Saturday January 24 1992
Design Dome	Set Up Displays	Set Up Displays	General Exhibition 8am-5pm	GM Mgmt. Tour Exhibit 8-9am General Exhibition 8am-5pm	Teardown
Design Dome Stage			"Mechanisms for Teaming" Video Presentations	"Mechanisms for Teaming" Video Presentations	
Training Center		"Moonshot" Presentations 8:30am-5:00pm Gov't Lab/GM Presenter Reception/Dinner 5:30pm-			
TEAM Center Classroom #3			Sandia Lab Technical Presentation 8am-12 noon Argonne Lab Technical Presentation 1-5pm	Idaho Lab Technical Presentation 8am-12 noon Pacific Nwst Lab Technical Presentation 1-5pm	
TEAM Center		Knowledge Center Awareness Days	Knowledge Center Awareness Days	Knowledge Center Awareness Days	
Individual Offices	Schedule your own focused meetings with Lab people	Schedule your own focused meetings with Lab people	Schedule your own focused meetings with Lab people	Schedule your own focused meetings with Lab people	
GMR Auditorium	GMR Presentations To National Labs 1-5pm				

General Motors Technical Center



Government Laboratory Brochure

Title

The Federal Laboratory System

Description

In today's fast-changing, highly competitive automotive world, General Motors must accelerate its efforts to acquire and apply leading-edge technology. Abundant opportunities to transfer or leverage technology created outside of the GM umbrella exist within government and university laboratories. GM competitors, particularly the Japanese, already have extensive programs in place to help them take advantage of these external research and development opportunities.

The Federal government network of over 700 laboratories employs some 100,000 scientific personnel, roughly one sixth of the nations scientists and engineers. These government laboratories are dedicated to perform research in generic, precompetitive technological arenas and make this research available to private industry.

Labs currently under consideration:

National Institute of Standards and Technology
Sandia National Laboratory
Pacific Northwest Laboratory

Oak Ridge National Laboratory
Los Alamos National Laboratory
Argonne National Laboratory

Features / Goals

Why Work With Government Labs?

The net result of circumstances leading up to the nineties have led to a paradigm shift: The United States government, having won the cold war but in danger of losing the economic war, has begun to shift its focus from military spending to the active promotion of a greater level of competitiveness of its civilian industries.

Legislation Leading Up To Current Government Laboratory Focus

During the 1980s Congress passed a series of Acts designed to improve the competitive position of American industry by facilitating the transfer of technology from government laboratories to private businesses. In 1988 Congress enacted the Omnibus Trade and Technology Competitiveness Act, and in 1989, the National Competitiveness Technology Transfer Act. This legislation effectively invited private industry to begin leveraging the research and development work conducted by a network of over 700 federal laboratories. In 1990, funding for these laboratories exceeded \$20 billion.

1986 Technology Transfer Act (Landmark Legislation): Simplified the procedure for working with government labs; established Cooperative Research and Development Agreements (CRADA) (for government operated labs such as NIST); enhanced intellectual property rights to industry; provided monetary incentives to government inventors to commercialize technology; and provided a structure for working cooperatively with the government and other industrial partners.

Present Methods Of Leveraging Government Research

Advanced Manufacturing Initiative

The DoE Advanced Manufacturing Initiative (AMI) is a new program involving American manufacturers, and the DoE laboratories and production facilities. This program is designed to create funds for the transfer of special manufacturing knowledge and expertise of DoE's laboratories and production facilities to the management and workers of American manufacturers.

Advanced Technology Program

The ATP is a DoC grant program administered by NIST to assist businesses in carrying out research and development on precompetitive generic technologies. The ATP emphasizes enabling technologies that underlie a wide range of potential applications that would offer significant benefits to the nation's economy.

Consortium

Consortia allow for multiple partners to participate in a collaborative research effort by providing funds and/or performing in-kind research. The heart of the agreement deals with the sharing of intellectual property rights among the participants. In the case of two-party agreement, the CRADA or a cost-sharing agreement would most likely prove adequate.

Contract R&D

In a work-for-others agreement, the entire cost of the work performed at the national lab is borne by the industry partner. Consequently, the industry partner obtains rights for commercialization of any inventions made during the accomplishment of the work performed under the agreement.

Cooperative Research & Development Agreements (CRADA)

In a cooperative research and development agreement researchers at Federal laboratories are able to contribute personnel, equipment, and resources to a cooperative research effort. The partner may contribute funds, personnel, equipment, and resources. Federal laboratories are specifically excluded from providing funds directly to an industrial partner. CRADAs are intended to transfer technology to an industry partner, and are mutually beneficial when there is a complimentary match of capabilities and resources between Federal laboratories and the industry partner.

Cost-Sharing Agreements

Cost-sharing agreements allow industry partners to contribute financially to research programs in Federal laboratories. In return for their financial support, partners receive intellectual property rights to inventions made as a result of the research work conducted under the agreement. As is the case with CRADAs, the sharing of intellectual property rights are negotiated prior to the initiation of the agreement. Unlike CRADAs, there is no category of protection from FOIA requests in a cost-sharing agreement. However, release of information to a third party requestor may be delayed.

Licenses

Licensing is used to transfer the intellectual property rights of patented inventions to industrial partners. License agreements can be tailored according to the needs of each situation. Licenses may be negotiated as a stand-alone agreement or they may be negotiated in conjunction with a CRADA.

Regional Manufacturing Technology Centers

Small and medium sized manufacturers have a unique set of needs and a limited ability to adopt advanced manufacturing technologies. In 1989 the U.S. Department of Commerce National Institute of Standards and Technology (NIST) established three Manufacturing Technology Centers (MTCs) to transfer advanced manufacturing technologies to small and medium manufacturers from federal laboratories and commercial sources.

Scientist and Engineer Exchanges

A Federal laboratory may possess special scientific or technical expertise in which an industry has an interest. Under this type of agreement, the Federal lab may invite industrial researchers to join their lab personnel in working in the area of their interest. This sharpens the skill of the industrial partner for application to industrial problems upon returning to their job. There is no cost for participating as a guest researcher. Agreements usually cover a period of time two months to one year in duration.

Technology Maturation Process (TMP)

Technology maturation is the process required to bring technology with commercial potential to a level that will encourage industry to undertake the remaining risks and costs of bringing this technology to the marketplace. TMP takes a lab project that is too far away from commercialization and funds its further development. TMP can be initiated by a Federal lab or by an industry which shows interest in a project. As TMP-funded projects come closer to commercialization (less risk) then industry can join in and participate in further development or obtain licensing.

Use of Government Facilities

Many of the government labs have established User Facilities. These facilities contain unique, expensive, highly specialized (sometimes one-of-a-kind) equipment. Industry is allowed access to these facilities to conduct its own research. If industry is willing to publish the results of its research conducted while using the lab's equipment then there is no charge for their use. If industry wants to keep the information proprietary then cost recovery by the lab is required. Usually the cost recovery is very nominal in comparison to the facilities made available.

For Additional Information

GM Contact:

Warren Office Contact
Washington Office Contact

Richard Marczewski
Jack Simon

8-227-2704 (313-947-2704)
8-447-5087 (202-775-5087)

- See Washington Technology Newsletter #18—A Basic Primer On The Mechanisms Available to Leverage Government R&D Resources

The TEAM Center Staff can help you identify technologies, expertise or facilities within the Federal Lab system which may be of potential interest to you.

Government Laboratory Brochure

Title

Argonne National Laboratory

Description

- Facilities are located on a 1700-acre site 25 miles southwest of Chicago, Illinois
- Managed by the University of Chicago
- Employs approximately 4,000 people
- Argonne is comprised of four research areas:
 - Energy, Environment, and Biology
 - Physical Research
 - Advanced Photon Source
 - Reactor Engineering

Features / Goals

Listed below are some of the projects that are currently being pursued at Argonne National Lab. The list includes the project name, division working on the problem, the relevance to GM, and the Laboratory contact.

Nonlinear Finite Element Applications on High Performance Computer Architectures—Computing & Telecommunications Division

Relevance To GM: Impact-Contact Simulations, Crashworthiness Modeling

For more information contact: Dr. Edward J. Plaskacz (708) 972-3249.

Parallel Processing—Advanced Scientific Computing, Mathematics & Computer Science Division

Relevance To GM: Large-Scale Scientific Computing; Process Automation

For more information contact: Dr. Hans G. Kaper, Director, Mathematics and Computer Science Division, (708) 972-7162

Parallel Processing, Chemical Dynamics Program—Theoretical Chemistry Group, Chemistry Division

Relevance To GM: Modification of simulation or engineering codes to massively parallel computers

For more information contact: Al Wagner, Program Leader, (708) 972-3597

Combustion/Pollution Chemistry, Chemical Dynamics Program—Chemistry Division

Relevance To GM: Design of more efficient, cleaner burning powertrain

For more information contact: Al Wagner, Program Leader, (708) 972-3597

Laser Aided Materials Processing—Engineering Physics Division

Relevance To GM: Laser welding of sheet metals; Laser cladding of valve seat inserts

For more information contact: Dr. Samit K. Bhattacharyya, Associate Director, Engineering Physics Division, (708) 972-4007

Nanophase Materials—Materials Science Division

Relevance To GM: Development of catalytic materials based on zeolite materials; Chemical vapor infiltration/deposition of ceramic thin films; multilayers and composites; magneto-optical thin film materials

For more information contact: B.D. (Bobby) Dunlap, Director, Materials Science Division, (708) 972-4798

Tribology for Transportation—Materials and Computer Technology Division, DoE Office of Transportation Technologies & Transportation Materials

Relevance To GM: Tribology is key to improved efficiency in current engines and for lubrication of advanced heat engines

For more information contact: Dr. Fred A. Nichols, Manager, Tribology Section, (708) 972-8292

Compact Heat Exchangers—Materials & Components Technology Division

Relevance To GM: Automotive cooling system engineers are faced with the challenge to design for smaller space in the engine compartment, reduced air flow through the engine compartment as a result of smaller grill areas introduced to reduce drag, a new refrigerant (HFC-134a) that has different characteristics from its predecessor (CFC-12), smaller refrigerant inventory (because the replacement refrigerant is more expensive), and reduced weight.

For more information contact: Martin W. Wambsganss (708) 972-6144

Instrumentation & Nondestructive Evaluation—Instrumentation & NDE Section, Materials And Components Technology

Relevance To GM: Development of techniques and systems for materials characterization and evaluation of component reliability

For more information contact: Dr. A.C. (Paul) Raptis, Manager, Instrumentation and NDE Section, (708) 972-5930 or (708) 972-5907

Degalvanizing of Scrap Steel—Energy & Environmental Systems Division

Relevance To GM: Due to the increased use of galvanized sheet steel, the amount of zinc coated scrap in the market has doubled since 1980. Refurnacing of galvanized scrap imposes high environmental compliance costs for furnace disposal and waste water treatment. Auto companies have a vested interest in the cost of domestic steel and iron production and design for recycling.

For more information contact: Dr. Bassam Jody (708) 972-4206

Antimony in Secondary Aluminum Supply—Energy & Environmental Systems Division

Relevance To GM: The automotive industry has an increasing interest in the use of lightweight materials that can be engineered to meet quality and performance standards. A process to remove antimony from aluminum is required to remove variability in the mechanical properties of cast aluminum alloys.

For more information contact: Dr. Patrick V. Bonsignore (708) 972-4257

Removal of Copper from Ferrous Scrap—Chemical Technology Division

Relevance To GM: Increased value of automobile scrap, lowered raw material cost for new minimill sheet steel and for the production of high grade steel products.

For more information contact: Dr. Milton Blander (708) 972-4548

Toughened Ceramics and Composites—Materials and Components Technology Division

Relevance To GM: Improved sensors, (especially oxygen sensors which can be made thinner and therefore more sensitive) cylinder linings, pistons, piston rings, valves, valve guides, turbochargers, etc.

For more information contact: Dr. J. P. Singh (708) 972-4798

Superconductivity Applications—High Temperature Superconductivity Application Center

Relevance To GM: Superconducting bearings make flywheel energy storage devices a potential alternative to batteries

For more information contact: Dr. John Hull (708) 972-8580

For Additional Information

GM Contact:

Warren Office Contact
Washington Office Contact

Richard Marczewski
Jack Simon

8-227-2704 (313-947-2704)
8-447-5087 (202-775-5087)

- See Washington Technology Newsletter #17—Argonne National Laboratory, GM Visit, June 18, 1991

Laboratory Contact:

Technology Transfer Center
9700 S. Cass Ave.
Argonne, IL 60439-4841
(708) 972-7694

Government Laboratory Brochure

Title

Los Alamos National Laboratory

Description

- Facilities are located on a 43 square mile site on the Pajarito Plateau in northern New Mexico
- Managed by the University of California
- Employs approximately 7,400 people and an annual budget of nearly \$1 billion
- Los Alamos is comprised of many research areas, some examples include:
 - Advanced Material—synthesis, processing, and fabrication
 - Nondestructive Evaluation
 - Supercomputing and Modeling
 - Advanced Manufacturing Technologies
 - Fuel Cell Technology
 - Energy Technologies

Features / Goals

Listed below are some of the projects that are currently being pursued at Los Alamos National Lab. The list includes the project name, division working on the problem, the relevance to GM, and the Laboratory contact.

Solid State Nitrogen Dioxide Sensor—Mechanical & Electrical Engineering Division

Relevance to GM: Highly selective sensors which can be built for a number of gases and placed on a single chip

Los Alamos is interested in finding industrial partners to jointly build a ceramic-based, high-temperature, fast sensor for nitrogen dioxide, and feels confident that highly selective sensors can be built for a number of gases and placed on a single chip.

For more information contact Dr. Ronald E. Barks, Industrial Applications Office (505) 667-3839.

Resonant Ultrasound Spectrometer—Non-Destructive Evaluation

Relevance to GM: Flaw detection of metals, alloys, ceramics and glasses

For more information contact Dr. Ronald E. Barks, Industrial Applications Office (505) 667-3839.

Nonlinear Adaptive Computing—Applied Theoretical Physics Division

Relevance to GM: Dynamic Modeling, Process-Control Automation, Automotive System Control, Non-Invasive Testing, Large-Scale Scientific Computing, Intelligent Control of Painting Systems

For more information contact: Dr. William C. Mead or Dr. Roger D. Jones (505) 667-8979

Latex Forms of Conducting Polymers—Materials Science & Technology Division

Relevance to GM: Corrosion control for metal components; conductive paints, glues, tapes; antistatic shielding; de-icing of some automobile components; electrodes for batteries and fuel cells; chemical and temperature sensors

For more information contact Dr. Ronald E. Barks, Industrial Applications Office (505) 667-3839.

Ultra-High Current Plasma Source Ion Implantation—Physics Division

Relevance to GM: An exciting new method for the cost-effective production of high-strength, corrosion-resistant, and low-friction material surfaces is currently receiving significant attention by LANL researchers. A Los Alamos team has proposed a larger-scale "Pilot plant" facility utilizing this technique. The ability to apply the known benefits of advanced materials to a much wider variety of products by lowering the cost of processing will be significant to the automotive industry

For more information contact: Dr. Donald Rej, Physics Division (505) 665-1883

A New Class Of High-Temperature Structural Materials—Materials Science and Technology Division

Relevance to GM: High-temperature structural silicides will benefit a variety of industries, from commercial aircraft and automobile manufacturers to military aircraft manufacturers and industries associated with electric power generation and pollution control. These composites can be used to produce advanced, very high-temperature heating elements with improved temperature capabilities and extended lifetimes for applications in industrial furnace and waste incineration, and catalyst based materials

It is clear that these composites can outperform structural ceramics in high-quality glow plugs, piston faces, valves, turbocharger rotors, and many other automobile components. Commercial aircraft components will be more reliable and have a longer service life—for example, the fracturing of turbine blades will be preventable because these materials will make the components resistant to catastrophic fracture. Better high-temperature components such as seals, vanes, and nozzles, in the gas turbine engines of advanced aircraft will allow increased turbine inlet temperatures, which will in turn improve the performance and fuel efficiency of the engines

For more information contact: Dr. Ronald E. Barks, Industrial Applications Office, (505) 667-3839

Environmentally Conscious Advanced Manufacturing Program (ECAM)—Advanced Manufacturing Division

Relevance to GM: ECAM Program focuses on developing new manufacturing technologies and processes that incorporate environmental safeguards from design to production and throughout product life cycle.

General technical areas include advanced materials synthesis, processing, and fabrication; process and product quality control, modeling, and analysis; enhanced energy and materials utilization; and waste and pollution minimization and prevention.

Specific areas include advanced multiprocessor computing; near-net shape forming for waste minimization; environmentally conscious manufacturing of ceramics, polymers, composites, and coatings; materials replacement with composite materials; and chemical-vapor-deposition diamond coatings for long-lasting tools steels and friction reduction.

For more information contact: John Umbarger (505) 665-4842

LANL User Facilities: unique facilities with state-of-the-art instrumentation

Advanced Computing Laboratory

Provides an innovative environment and experimental computing hardware to study computer applications and problems of the future. Its approach is to team computer scientists and applied mathematicians with physicists, chemists, biologists and other scientists and provide the most up-to-date computing equipment to help drive the development of leading-edge computing technology.

Center for Materials Science

This center was founded to strengthen interactions with the national materials science community. The center supports workshops, visitors, and collaborations with university researchers.

For Additional Information

GM Contact:

Warren Office Contact
Washington Office Contact

Richard Marczewski
Jack Simon

8-227-2704 (313-947-2704)
8-447-5087 (202-775-5087)

- See Washington Technology Newsletter #19—Los Alamos National Laboratory, GM Visit, July 24, 1991

Laboratory Contact:

Industrial Applications Office
Los Alamos National Laboratory
Mail Stop M899
Los Alamos, NM 87545
Telephone: 505-667-3839

Government Laboratory Brochure

Title

National Institute of Standards and Technology

Description

- Facilities are located on a 2 major sites:
 - Gaithersburg, Maryland
 - Boulder, Colorado
- Employs approximately 3,200 scientists, engineers, technicians, and support personnel in addition to the 1,100 visiting scientists
- NIST has an annual operating budget of \$420 million
- The Omnibus Technology Competitiveness Act directed NIST "to enhance the competitiveness of American industry," encouraging access to NIST's exceptionally valuable resources
- NIST is the administrator of the Advanced Technology Program, as well as the Malcolm Baldrige Award

Features / Goals

Listed below are the various laboratories housed at NIST.

Electronics and Electrical Engineering Laboratory: conducts research and development in the fields of electrical and electronic materials, devices, instruments, and systems.

Chemical Science and Technology Laboratory: focuses on design and control of competitive and energy efficient manufacturing facilities to enhance health, safety and environmental quality.

Materials Science and Engineering Laboratory: provides the nation with critically evaluated data and other technical information on the fundamental aspects of processing, structure, properties, and performance of materials. Outputs are directed toward the needs of U.S. industry, government agencies, and academic institutions.

Computing and Applied Mathematics Laboratory: provides a resident staff of specialists in selected areas of mathematics, statistics, scientific and administrative computing, network design and engineering, telecommunications, and theoretical modeling of scientific and engineering problems.

Building and Fire Research Laboratory: increases the safety and economy of buildings and enhances competitiveness of U.S. building services and products through the advancement of building technology. The program is also composed of elements related to basic research, timely response to current fire problems, and serves as a focal point for fire research in the nation.

Manufacturing Engineering Laboratory: charged with supporting the U.S. mechanical manufacturing industries. The laboratory cooperates with various standards bodies in the development of national and international standards of interest to mechanical manufacturing.

Listed below are some of the projects that are currently being pursued at National Institute of Standards and Technology. The list includes the project name, division working on the problem, the relevance to GM, and the Laboratory contact.

Complex Systems Testing—Electronics and Electrical Engineering Laboratory

Relevance to GM: NIST developments in defining an optimal number of measurements to characterize a system are described. For a specific device, methods have been demonstrated to permit the number of measurements to be reduced from all possible states of the device to a set nearly 100 times smaller with no loss in the accuracy of characterization.

For more information contact: Gerard Stenbakken (301) 975-2440

Thin Film Thermocouples and Ionic Sensors—Chemical Science and Technology Laboratory

Relevance to GM: Development of solid state sensing technologies based on sputtered thin films of metals and metal oxides focuses on thin film thermocouples and on noble metal oxide films for pH sensing. Thin film thermocouples are being fabricated for use in performance testing of ceramic-lined diesel engines. Thin films of noble metal oxides are under investigation as solid pH sensors for use in high temperature environments.

For more information contact: James Whetstone (303) 975-2738

Measurement and Modeling of High Temperature Reacting Flows as Applied to Materials Processing and Combustion—Chemical Science and Technology Laboratory

Relevance to GM: Research activities in this lab concentrate on development of in-situ laser diagnostic methods applied to broad areas of combustion and synthesis of materials. Both laser scattering techniques and spectroscopic methods are used to study the chemical reactions and mechanisms controlling particle formation at high temperatures directly from the gas phase.

For more information contact: Michael Zachariah (301) 975-2616

Polymer Division Work—Materials Science and Engineering Laboratory

Relevance to GM: Reliable processing methods and more accurate techniques for predicting performance (especially long-term durability) are being developed.

For more information contact: Leslie Smith (301) 975-6762

Ceramics Division Work—Materials Science and Engineering Laboratory

Relevance to GM: Focused studies on processing sciences, ceramic powder characterization, tribology, ceramic matrix composites, and fracture. Both structural and functional ceramics are included in laboratory studies addressing those fundamental needs of cost, reliability, and performance prediction for advanced ceramics.

For more information contact: S.J. Dapkunas (301) 975-6119

Metallurgy Division Work—Materials Science and Engineering Laboratory

Relevance to GM: Major research programs are conducted in the following areas; intermetallic alloys, metal-matrix composites, and the manufacturing of more conventional alloys.

For more information contact: E. Neville Pugh (301) 975-5960

On-line Detection and Control of Coatings Defects—Building and Fire Research Laboratory

Relevance to GM: The presence of defects on coated metal surfaces is an important industrial problem. NIST researchers have developed electro-optical techniques for imaging a wide range of coating and steel substrate defects, such as craters, orangepeel, and holes in steel.

For more information contact: Jonathan Martin (301) 975-6717

Advanced Deburring and Chamfering System—Manufacturing Engineering Laboratory

Relevance to GM: Cell will be capable of automatically generating, from part geometry and machining information, a series of robot paths for deburring parts made from superalloys. In order to compensate for the inaccuracy of robots when following computer coordinates, an actively-controlled end effector will be used to precisely position a rotary file in response to forces sensed at the part edge.

For more information contact: Fred Proctor (301) 975-3422

For Additional Information

GM Contact:

Warren Office Contact
Washington Office Contact

Richard Marczewski
Jack Simon

8-227-2704 (313-947-2704)
8-447-5087 (202-775-5087)

- See Washington Technology Newsletter #10—November NIST Visit

Laboratory Contact:

David Edgerly
National Institute of Standards and Technology
Gaithersburg, Maryland 20899
Telephone: 301-975-4500

Government Laboratory Brochure

Title

Oak Ridge National Laboratory

Description

- Three facilities located in Oak Ridge, Tennessee
- Staffed by 13,000 people
- Managed by Martin Marietta Energy Systems, Inc. (MMES)
- Mission: To facilitate the effective transfer and application of advanced science technology to U.S. industry

Features / Goals

Retrofitting CNC Machines

- Improved levels of close-tolerance machining capability (Successfully retrofitted 100 turning machines to hold tolerances of 0.0005")
- Improved productivity by a factor of 8:1

Adaptive Welding Control

- Types of welding technologies
 - Gas tungsten arc
 - Gas metal arc
 - Electron beam
 - Friction/inertial
 - Laser welding
 - Resistance welding
- Mission: extend monitoring and adjustment control capabilities currently available for E-Beam welding
- Focusing on new methods for joining plastics

Non-Destructive Evaluation

- Techniques for Non-Destructive Evaluation (NDE)
 - X-ray
 - Ultrasonics
 - Radiation
 - Eddy current

Artificial Intelligence

- Fuzzy Logic Control Work
- Application of Fuzzy Logic to Robotics using Custom Designed VLSI Chips
- Hydroforming Tool-Die Design Advisor
- ORNL's Maintenance Importance Generator (MIG)

Environmental

- Concerned with treating and recycling waste generated on-site
- Conducting experiments using water as a coolant for machines in an effort to reduce the use of commercial coolants
- Efforts in place to reduce the use of CFC type degreasers

Conservation and Renewable Energy Program

- Goals
 - Improve energy efficiency
 - Fuel flexibility
- Actively seeking CRADA's with U.S. industry—already has money set aside for the effort

Engineering Physics Department

- Laser Systems Section
 - Techniques to aid in thermoplastic materials consolidation
 - Phosphor thermography
 - Developing techniques which can be used to strip paint from metals and organic composites without using solvents and without damaging material surfaces
- Fiber-Optic Sensors Section
 - Utilizing fiber-optic technology to determine stress/strain and weight/motion measurements.
- Data and Imaging Systems Section
 - Data acquisition, storage, and processing
 - Machine vision inspection
 - Precision instrument metrology
- Power Electronics Section
 - Brushless DC motors and generators
 - Leading-edge inverter topologies
 - Power systems analysis and design

Engineering Physics Department Cont.

- Analog circuit behavior modeling
- Semiconductor modeling
- Modern and classical system control analysis
- Linear and non-linear circuit analysis
- Axial air-gap superconducting motors
- Fully variable-speed AC drives
- Motor and generator characteristics
- Superconducting magnets for energy storage at 150 kJ levels
- High-power high-density alternators
- **Fluid Flow and Mechanics Section**
 - Vibrations
 - Vibration dampening
 - Acoustics
 - Heat transfer
 - Fluid mechanics
 - Stress analysis

Facilities and Systems Technology Department

- **Facilities restoration**
 - Equipment removal and disposal
 - Facility contamination surveys
 - Facility decontamination and certification of decontamination
- **Rotating machinery**
 - High speed rotational testing using vacuum air turbine spin chambers
 - Can achieve 60,000 revolutions per minute

Materials Engineering Department

- Advanced polymer matrix composites
- Advanced manufacturing processes
- Prototype development
- Structural design and analysis
- Testing and evaluation

High Temperature Materials Laboratory

- Industrial user facility
- Contains research equipment to relate microstructure and microchemistry to the mechanical and physical properties of materials
- Contains machines and equipment that typical industrial companies may not be able to afford

Robotics and Intelligent Systems Program

- Extending human senses and capabilities into hostile semi-structured environments where real-time navigation, manipulation, and surveillance are required
- Machine intelligence
- Advanced computing
- Mechanisms, dynamics, and controls
- Sensors and vision
- Advanced teleoperations
- Human-machine interface
- System integration

For Additional Information

GM Contact:

Warren Office Contact
Washington Office Contact

Richard Marczewski
Jack Simon

8-227-2704 (313-947-2704)
8-447-5087 (202-775-5087)

- See Washington Technology Newsletter #14—Oak Ridge National Laboratory

Laboratory Contact:

David K. Jamison
Martin Marietta Energy Systems
Manager, Technology Partnerships
P.O. Box 2009
Oak Ridge, Tennessee 37831-8218
(615) 576-9679

Government Laboratory Brochure

Title

Pacific Northwest Laboratory

Description

- Located in southeastern Washington state
- Multiprogram Department of Energy Laboratory
- Managed by the Battelle Memorial Institute.
- Employs approximately 3,500 scientists, engineers and support specialists

Features / Goals

Listed below are some of the projects that are currently being pursued at Pacific Northwest Lab. The list includes the project name, division working on the problem, the relevance to GM, and the Laboratory contact.

Polymer Multilayer Solar Control Film

Relevance to GM: Visible transparent/IR reflective coatings for solar control/windshield de-icing in automobiles

For more information contact: John Affinito, (509) 375-6942

Direct Measurement Of High-Temperature Metals

Relevance to GM: Internal temperature measurements of metal and metal matrix automotive parts (engine blocks, shafts, etc) during heat treatment, casting, and forming

For more information contact: Dr. Donald Boyd, Manager, Automation and Measurement Sciences Department, (509) 375-2149

Self-Sustained Combustion Synthesis Of Ceramic And Metal Powders

Relevance to GM: The forte of the Glycine/Nitrate Process is synthesis of complex, multicomponent, or multiphase powders, which have broad potential applications including specialty ceramic parts, ceramic-metal composites, and catalysts.

For more information contact: Larry Chick, (509) 375-2145

Large-Scale Optical Coatings

Relevance to GM: These technologies have potential applications as infrared reflective coatings on car windows and for deicing and defogging applications.

For more information contact: Edward L. Courtright, (509) 375-6926

Real-Time Characterization Of Materials Performance And Reactivity In Hostile Environments

Relevance to GM: Evaluation and wear properties of new brake materials, stability of polymers to temperature, light, and moisture, interaction of petroleum products with polymers, evaluation of new solid lubricants and their degradation products, structural materials stability under conditions of sliding friction, optical fiber sensors for measurement of temperature and pressure.

For more information contact: Gregory J. Exarhos, (509) 375-2440

Inorganic Polymer-Containing Materials

Relevance to GM: Stable high-temperature thermoplastics (to 500°C), gasketing material and fluid delivery systems (minimum interaction with hydrocarbons), glass/polymer laminates, polymer/ceramic matrix composites, fire-retardant plastics, polymer protective coatings.

For more information contact: Gregory J. Exarhos, (509) 375-2440

Inspection Technology For Production Quality Control

Relevance to GM: Development and implementation of automated product inspection systems to meet a variety of client QC needs.

For more information contact: Don Boyd, (509) 375-2149 or John Hartman (509) 375-2771

Real-Time Nondestructive Evaluation Of Composite Materials

Relevance to GM: The Real-Time Ultrasonic Imaging System (RTUIS) developed by Pacific Northwest Laboratory (PNL) provides large-area examination of composite materials to show the precise size, shape, and nature of internal defects in one-tenth the time required for the more conventional imaging systems.

For more information contact: Don Boyd, (509) 375-2149 or Byron Brenden (509) 375-2027

Environmental Mechanical Testing

Relevance to GM: Test equipment and techniques to obtain strength and toughness data for a variety of materials, including ceramic composites, monolithic ceramics, and Beryllium intermetallics.

For more information contact: Charles H. Henager, Jr., (509) 376-1442, or Russell H. Jones, (509) 376-4276.

In-Situ Composite Processing Using Displacement Reactions

Relevance to GM: Low cost, near-net shape production of a wide range of composite materials, including intermetallics, oxides, silicides, carbides, and borides into whiskers, ribbons and platelets

For more information contact: Charles (Chuck) H. Henager, Jr., (509) 376-1442, or John L. Brimhall, (509) 376-3617

Composite Materials

Relevance to GM: Advanced composite materials are being increasingly used for the construction of light-weight, high performance, structural components. PNL is involved in many aspects of composites technology including: structural analysis, fabrication, testing, component design and prediction of failure modes.

For more information contact: Dr. Fredric A. Simonen, Theoretical and Applied Mechanics Group, (509) 375-2087

Graphite Flake Reinforcement

Relevance to GM: Inexpensive (<\$1/lb.) graphite flakes could allow the development of inexpensive lightweight polymer-based composite materials which could be used to replace heavier metallic materials for many parts/components.

For more information contact: L. R. (Roy) Bunnell, (509) 376-2799

Biomimetic Coatings

Relevance to GM: This process could find application in the auto industry for protective coatings to harden metal, polymer, or glass surfaces and for application of electronic or magnetic patterns on surfaces.

For more information contact: Gary L. McVay, (509) 375-3762

Acoustic Emission Techniques Used For Monitoring The Integrity Of Critical Parts

Relevance to GM: Materials development, in-situ part integrity monitoring, damage assessment, friction and leak testing, and component diagnostics.

For more information contact: Dr. Mark A. Frieselt, Automation and Measurement Sciences Department, (509) 375-2235

Thin-Wall Die Casting/Metal Matrix Composite Casting Technology

Relevance to GM: Potential applications to automotive materials including a wide variety of cast MMC engine components, high-strength die castings, and selectively reinforced engine and secondary structural components

For more information contact: Mark T. Smith, (509) 376-2847

Polymer Composite Materials Technology

Relevance to GM: In addition to material processing and testing, several automotive technology assessment studies have been conducted to evaluate the use of advanced composites in body, chassis, and drivetrain components, and development of mold coatings for Class A composite panel finish

For more information contact: Mark T. Smith, (509) 376-2847, or D. M. Bigg, Battelle-Columbus Laboratories, (614) 424-6424

For Additional Information

GM Contact:

Warren Office Contact
Washington Office Contact

Richard Marczewski
Jack Simon

8-227-2704 (313-947-2704)
8-447-5087 (202-775-5087)

- See Washington Technology Newsletter #21—Pacific Northwest Laboratory, GM Visit, September 3, 1991

Laboratory Contact:

Gary L. McVay, Ph.D.
Materials Science Department
Pacific Northwest Laboratory
Richland, Washington 99352
Telephone: 509-375-3762

Government Laboratory Brochure

Title

Sandia National Laboratory

Description

- Facilities are located on a 3 major sites:
 - Albuquerque, New Mexico
 - Livermore, California
 - Tonopah, Nevada
- Located on land totaling approximately 562 square miles (most of which is at the Tonopah Test Range)
- Managed by the Sandia Corporation, a wholly owned subsidiary of AT&T
- Employs approximately 8,000 people
- Sandia facilities include state-of-the-art equipment for:
 - Environmental Testing
 - Combustion Research
 - Design, Fabrication, and Process Development

Features / Goals

Listed below are some of the projects that are currently being pursued at Sandia National Lab. The list includes the project name, division working on the problem, the relevance to GM, and the Laboratory contact.

Catalyst R&D—Process Research Division

Relevance to GM: Tailoring engineered catalyst forms for catalytic converters

For more information contact: Howard Stephens (505) 844-9178

Plasma Sprayed Coatings—Process Metallurgy

Relevance to GM: Metal, Ceramic, and Composite Hardcoatings (clutch plates, fuel injectors, valve train components, piston rings, cylinder walls, journals & seals); Thermal Barrier Coatings (cylinder heads, valves, A/C temperature sensors, piston crowns, manifolds, turbochargers) Dielectric Coatings (battery charging systems, ignition system, sensors, computers and radios); Specialty Plasma Sprayed Materials (composite solid lubricants, catalytic coatings, spray-formed parts, porous coatings [e.g., fuel cells])

For more information contact: Mark F. Smith (505) 846-4270

Feedback Control Of Arc Welding Using Quantitative Feedback Theory—Process Development and Fabrication Division

Relevance to GM: Quality control in arc welding

A feedback system has been developed at Sandia which uses a high temperature fiber-optic cable to measure and control the amount of infrared light emitted from the back side of the weld. The cable is only 1/16 of an inch in diameter, so it can be inserted into any vessel which has a small opening at either end. The system also measures the travel speed of the part to make weld quality independent of part thickness and travel speed. Constant penetration has been demonstrated in tests with travel speeds ranging from 0 to 6 inches per minute, and with 200% changes in part thickness. The system also compensates for sharp discontinuities in heat shrinking and arc length.

For more information contact: Tony Bentley (415) 294-1375

Low-Energy Explosive Igniter—Explosive Components Group

Relevance to GM: Low energy bridge makes multiple air bags more feasible. This igniter is based on semiconductor bridge (SCB) technology. An SCB can ignite less sensitive explosive materials than those presently used in automotive air bags and do so with less energy than needed by hot-wire igniters. And because SCBs are processed on a silicon wafer, the chip can incorporate additional circuitry for logic, timing, and safety. Consequently, because integrated circuits are inherently rugged and because relatively long wiring harnesses and mechanical connectors are not needed, SCB systems should prove very resistant to the severe, onboard normal environments that automobile air bag devices must withstand.

For more information contact: Bob Bickes (505) 846-0559

Ion Implantation Metallurgy—Process Metallurgy

Relevance to GM: A versatile means of improving surface properties such as friction coefficient, hardness, wear rate and corrosion resistance

For more information contact: Bruce Van Domelen, Technology Transfer Applications Division, (Org. 412) at (505) 846-8378

Vacuum-Arc Remelt Facility

Some of Sandia's unique facilities are at the center of a cooperative arrangement with the U.S. specialty metals industry. This facility contains the only full-scale research furnace in the country.

For more information regarding any of the following user facilities contact: Bruce Van Domelen, Technology Transfer Applications Division, (505) 846-8378

Combustion Research Facility

Located outside the Sandia security area, the 51,000 square foot building complex permits easy access for university and private industry representatives, who are able to work with Sandia researchers on combustion-related experiments.

The CRF develops and applies new research tools, particularly laser diagnostics and computer modeling, to fundamental and applied problems in combustion research. This facility has three centrally located lasers, a facility beam distribution (periscope) system, state-of-the-art diagnostics capabilities, and a broad range of computers.

Combustion In Engines And Furnaces

Focuses on the application of advanced laser diagnostics to provide insight into critical problems impeding the development of improved engine concepts.

The problem areas under investigation include the interaction between precombustion fluid mechanics and combustion end-gas, auto-ignition leading to engine knock, and the auto-ignition and combustion properties of alternative fuel sprays for diesel applications.

Manufacturing Technologies

Sandia's Manufacturing Technologies Directorate (MTD) supports all project stages: concept formulation, design, process development, prototype fabrication, test and evaluation, and follow-on production.

They assist customers in finding available commercial solutions; when these are not available, they perform supplemental development activities which include: Process development; Prototype hardware; Producibility assessments; and Quality.

For Additional Information

GM Contact:

Warren Office Contact
Washington Office Contact

Richard Marczewski
Jack Simon

8-227-2704 (313-947-2704)
8-447-5087 (202-775-5087)

- See Washington Technology Newsletter #20—Sandia National Laboratory, GM Visit, July 22, 1991

Laboratory Contact:

Technology Transfer Applications Division
Sandia National Laboratory
Organization 412
Albuquerque, NM 87185-2363
Telephone: 505-846-8378

"INVITATION FOR DR. BROMLEY"

TYPE: INVITATION

DOCUMENT NUMBER: 9200068

ORIGINATOR: 02

SPEECH: YES NO

FROM: BULLOCK, Mary and LITWAK, Robert S.: WOODROW
WILSON CENTER

DATE OF EVENT: 01/27/92 THRU:
TENTATIVE DATES:

LOCATION OF EVENT: SMTITHSONIAN CASTLE BUILDING

TIME OF EVENT: 5:30 P.M. COCKTAILS, 6:00 P.M. DINNER

SUBJECT: AN INVITATION TO ATTEND THE KEYNOTE DINNER SESSION
OF THE JAPAN AND THE WORLD CONFERENCE.

RSVP: 01/20/92

CONTACT PERSON:

CONTACT NUMBER:

INVITATION ACCEPTED?

YES NO

COPIES TO: INTERNATIONAL/POL

REMARKS:

CLOSED

DATE OF LETTER: 01/06/92

DATE RECEIVED: 01/09/92

FILE: P-INVITATION

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COPIES TO: INTERNATIONAL/POL

REMARKS:

DATE OF LETTER: 01/06/92

DATE RECEIVED: 01/09/92

FILE: P-INVITATION

THE WOODROW WILSON CENTER



RECEIVED

January 6, 1992 92 JAN 9 A9:27

Mr. Allan Bromley
Assistant to the President
Assistant to the President for Science
and Technology
The White House
Washington, DC 20500

OSTP
MAIL ROOM

Dear Mr. Bromley:

We are pleased to invite you to attend the keynote dinner session, "Japan -- a 21st Century Power," of the *Japan and the World* conference being held at the Woodrow Wilson Center on January 27, 1992. This session is part of the Wilson Center's Evening Dialogue Series sponsored by the Xerox Foundation. The speakers, Kazuo Chiba, former Chairman of the GATT Council and former Japanese Ambassador to Great Britain, and Paul Kennedy, J. Richardson Dilworth Professor of History at Yale, will provide Japanese and American perspectives of Japan's future within the changing political economy of the world. This issue is timely; with the end of the Cold War, attention increasingly is being shifted to Japan's role within the "new world order."

The dinner will be held in The Commons on the first floor of the Smithsonian Institution "Castle" Building, 1000 Jefferson Drive, SW, Washington, DC at 6:00 PM on Monday, January 27, 1992. We will begin with cocktails at 5:30 in the Resident Associates Lounge, directly outside the Commons. Presentations by Paul Kennedy and Kazuo Chiba will be followed by questions and discussion. The session should conclude by 9:00 PM.

In addition to the dinner dialogue session, you are of course welcome to attend any of the other sessions in this two-day conference. The general theme of the conference concerns Japan's changing role as a new global power. The objective is to create a synthesis of perspectives from different disciplines and different countries on key issues. The first session, "Japan -- a new Kind of Superpower?," examines the cultural, economic, and military components of Japan's global power status. The second session, "Japan in a Multipolar World," addresses Japan's situation in light of regional economic bloc formation. The third session, "Japan in Search of a Geopolitical Role," concerns Japan's position in multilateral settings. The conference will conclude with an exploration of the implications for U.S.-Japan relations. Please see the attached conference program for further details.

We will be honored if you can attend. For your convenience, we have enclosed an RSVP card. We look forward to hearing from you soon.

Sincerely,

Mary Brown Bullock
Director,
Asia Program

Robert S. Litwak
Director,
International Studies

WOODROW WILSON INTERNATIONAL CENTER FOR SCHOLARS
1000 JEFFERSON DRIVE, S.W. WASHINGTON, D.C. 20560
202-357-2429 TELEX 264729 FAX 202-357-4439

JAPAN AND THE WORLD

January 27-28, 1992

Japan — a New Kind of Superpower?

Peter Katzenstein . Nobuo Okawara . Ezra Vogel . Kozo Yamamura

Japan in a Multipolar World

Henri Claude de Bettignies . Lee Poh-ping . Carlos Moneta

Japan — a 21st Century Power

Ambassador Kazuo Chiba . Paul Kennedy

Japan in Search of a Geopolitical Role

Koichi Hamada . Robert Immerman . Yoriko Kawaguchi . Susan Pharr

Implications for U.S. Japanese Relations

Senator Howard Baker

THE WOODROW WILSON CENTER



Monday, January 27

8:30 Registration/Continental Breakfast

9:15 Japan -- a New Kind of Superpower?

9:30 Sociological Perspective

Ezra Vogel, Chairman, East Asian Studies Program, Harvard University

9:55 Japan's Political Economy

Kozo Yamamura, Chair, Japan Studies Program, Jackson School, University of Washington

10:20 Japanese Security Issues

Peter Katzenstein, Professor, Government Department, Cornell University

Nobuo Okawara, Associate Professor, Political Science Department, Kyushu University

11:00 Commentary: *Yukio Matsuyama, Distinguished Visiting Fellow, Harvard University*

Richard Rosecrance, Professor, Political Science Department, U.C.L.A.

12:30 Lunch

1:45 Japan in a Multipolar World

1:45 Japan and the Asia-Pacific Region

Lee Poh-ping, Professor, Faculty of Economics and Administration, University of Malaya

2:10 Japan and E.C. '92

Henri Claude de Bettignies, Professor, Institut Europeen d'Administration des Affaires

2:35 Japan and the North America Free Trade Agreement

Carlos Moneta, Special Adviser, Sistema Economico Latino Americano

3:15 Commentary: *Barbara Stallings, Professor, Global Studies Program, University of Wisconsin*

Masaru Tamamoto, Director, Asian Studies Center, American University

5:30 Reception

6:00 Dinner Dialogue: Japan -- A 21st Century Power

Paul Kennedy, J. Richardson Dilworth Professor of History, Yale University

Ambassador Kazuo Chiba, Counsellor, Mitsui and Co.; former Chairman of the GATT Council

Tuesday, January 28

8:45 Continental Breakfast

9:15 Japan in Search of a Geopolitical Role -- the Challenge

9:15 Japan in the United Nations

Robert Immerman, Senior Research Associate, East Asian Institute, Columbia University

9:40 Japan's Role in the International Monetary System

Koichi Hamada, Professor, Economics Department, Yale University

10:20 Japan's Role in the International Trade System

Yoriko Kawaguchi, Commercial Minister, Japanese Embassy in Washington, D.C.

10:45 Japanese Official Development Assistance

Susan Pharr, Director, Program on U.S.-Japan Relations, Harvard University

11:10 Commentary: *Robert Gilpin, Professor, Woodrow Wilson School, Princeton University*

Yusuke Onitsuka, Professor, Department of Int'l Relations, University of Tokyo

1:00 Luncheon Discussion: Japan's New Dimensions - Implications for U.S.-Japanese Relations

Senator Howard Baker, Partner, Baker Worthington; former White House Chief of Staff



The Woodrow Wilson International Center for Scholars was created by the United States Congress in 1968 as the nation's living memorial to its twenty-eighth president. The Center seeks to commemorate the scholarly depth and public concerns of Woodrow Wilson through supporting advanced research in culture, history, politics, and economics, and sponsoring numerous conferences, seminars, and colloquia that bring together scholars, public officials, and other professionals from throughout the world. This conference is sponsored by the Center's Asia Program and the Division of International Studies.

Funds for this conference are provided by the Pew Charitable Trusts, Rockefeller Brothers Fund, Woodrow Wilson Center Conference Fund, and the Xerox Foundation.

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WASHINGTON DC 20277-2915

ASIA PROGRAM



EVENT JAPAN AND THE WORLD, JANUARY 27-28, 1992

_____ ACCEPT _____ DAY 1 _____ DINNER _____ DAY 2 _____

~~X~~ REGRET

NAME Dr. D. Allan Bromley.

NAME Dr. D. Allen
TITLE Assistant to the President for Science & Technology

AFFILIATION _____

THE WOODROW WILSON CENTER/ASIA PROGRAM

(202) 357-1937

"INVITATION FOR DR. BROMLEY"

TYPE: INVITATION

DOCUMENT NUMBER: 9200074

ORIGINATOR: 02

SPEECH: YES NO

FROM: TODD, James S.: AMERICAN MEDICAL ASSOCIATION

DATE OF EVENT: 02/04/92 THRU:
TENTATIVE DATES:

LOCATION OF EVENT: GRAND HYATT HOTEL

TIME OF EVENT: 7:00 P.M.

SUBJECT: AN INVITATION TO ATTEND A GALA DINNER HONORING THE
RECIPIENTS OF THE 1991 DR. NATHAN DAVIS AWARD FOR
OUTSTANDING ACHIEVEMENTS ON BEHALF OF THE PUBLIC
HEALTH.

RSVP: 01/23/92

CONTACT PERSON: DICKS, Suzie

CONTACT NUMBER: 202-785-1391

INVITATION ACCEPTED?

~~YES~~

NO

COPIES TO: D. Allan Bromley
LIFE SCIENCES

REMARKS: PLEASE NOTE: DR. WILLIAM RAUB IS BEING RECOGNIZED FOR THIS
AWARD.

CLOSED

DATE OF LETTER: 01/06/92

DATE RECEIVED: 01/09/92

FILE: P-INVITATION

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RSVP: 01/23/92

CONTACT PERSON: DICKS, Suzie

CONTACT NUMBER: 202-785-1391

INVITATION ACCEPTED? YES

NO

COPIES TO: D. Allan Bromley
LIFE SCIENCES

REMARKS: PLEASE NOTE: DR. WILLIAM RAUB IS BEING RECOGNIZED FOR THIS
AWARD.

DATE OF LETTER: 01/06/92

DATE RECEIVED: 01/09/92

FILE: P-INVITATION

Dr. Todd:

I/We accept

I/~~he~~ regret

Your kind invitation to honour the recipients of the
Dr. Nathan Davis Awards on Tuesday, February 4, 1992.

Name: Dr. D. Allan Bromley

Title: Assistant to the President for Science &
Technology

Telephone: 202/456-7116

Telephone Contact: Marian Nida

American Medical Association

Physicians dedicated to the health of America

James S. Todd, MD
Executive Vice President

515 North State Street
Chicago, Illinois 60610

312 464-5000
312 464-4184 Fax

RECEIVED

92 JAN 9 PM 2:19

January 6, 1992

OSTP
MAIL ROOM



The Honorable Allan Bromley
Assistant to the President for Science and Technology
360 Old Executive Office Building
Washington, D.C. 20500

Dear Mr. Bromley:

On behalf of the officers and members of the American Medical Association, it is my pleasure to invite you and your spouse to join us in saluting the 1991 recipients of the 1991 Dr. Nathan Davis Award for their outstanding achievements in behalf of the public health. Joining us will be leadership of the health profession and industry from around the country applauding them for their proven endeavor. They will be presented this important honor at a gala dinner, seven o'clock, Tuesday, February 4, 1992, at the Grand Hyatt Hotel, Tenth and "H" Streets, N.W., Washington, D.C.

These awards were founded by the AMA to recognize outstanding activity on the part of elected and appointed public officials to further the public health. Awards are made by an independent panel of judges. The 1991 recipients include Senator John D. Rockefeller, IV; Congressmen J. Roy Rowland and C.W., 'Bill' Young (sharing the Outstanding Congressmen Award); former HHS Secretary Margaret Heckler; NIH Deputy Director William F. Raub; New York Assembly Majority Leader James R. Tallon, Jr.; Rockford, Illinois Mayor Charles E. Box; and T.H.E. Clinic for Women (Los Angeles) Director Sylvia Drew Ivie.

I recognize there are many pressures on your schedule, nevertheless, I do hope you will join us to salute these superb public officials.

Last year, many Cabinet Secretaries and other Administration officials joined thirty-eight Members of Congress in saluting our 1990 recipients. Obviously, this dinner has become one of the significant events in the health area. With the attention being given to reform and advancement in health care, I really hope you will be with us to salute the 1991 Awardees. Clearly, they symbolize the hard work and dedication of so many in public service to the well-being of our citizens.

Dress is informal and we should adjourn by ten o'clock. If you have questions, please ask your secretary to call Suzie Dicks, who is coordinating this event, at 202/785-1391.

Looking forward to welcoming you on February 4 and your sharing in this recognition evening for your colleagues,

Sincerely yours,

A handwritten signature in cursive script that reads "James S. Todd, M.D." with a stylized flourish at the end.

James S. Todd, M.D.

Enclosure: Response card



Dr. James S. Todd
Executive Vice President
American Medical Association
Suite #870
1050 Connecticut Avenue, N. W.
Washington, D. C. 20036

Dr. Todd:

I/We accept _____

I/We regret _____

Your kind invitation to honour the recipients of the
Dr. Nathan Davis Awards on Tuesday, February 4, 1992.

Name: _____

Title: _____

Telephone: _____

Telephone Contact: _____

"INVITATION FOR DR. BROMLEY"

TYPE: INVITATION

DOCUMENT NUMBER: 9200075

ORIGINATOR: 02

SPEECH: YES NO

FROM: WHITE, Robert: U.S. DEPARTMENT OF COMMERCE

DATE OF EVENT: 01/30/92

THRU:

TENTATIVE DATES:

LOCATION OF EVENT: MIT

TIME OF EVENT:

SUBJECT: HE IS INFORMING DR. BROMLEY OF THE "TOWN MEETING"
THAT THEY ARE SPONSORING TO STIMULATE THE
DEVELOPMENT AND COMMERCIALIZATION OF TECHNOLOGY.

RSVP: 01/13/92

CONTACT PERSON:

CONTACT NUMBER:

INVITATION ACCEPTED?

~~YES~~

NO

COPIES TO: INDUSTRIAL

REMARKS:

CLOSED

DATE OF LETTER: 01/06/92

DATE RECEIVED: 01/09/92

FILE: P-INVITATION



0075 INV
UNITED STATES DEPARTMENT OF COMMERCE
The Under Secretary for Technology
Washington, D.C. 20230

RECEIVED

92 JAN 9 PM 2:19

January 6, 1992

OSTP
MAIL ROOM

The Honorable D. Allan Bromley
Assistant to the President for
Science and Technology
Office of Science and Technology Policy
360 Old Executive Office Building
Washington, D. C. 20506

Dear Allan,

As I mentioned in Brussels, we here in Commerce will attempt this coming year to raise the conscienceness of technology competitiveness. As a start in this direction I thought you might be interested to know that we plan to hold a "town meeting" at MIT on January 30 to stimulate the development and commercialization of technology and to encourage U.S. industry to use the information, tools, and contacts available to them to leverage the Federal research effort. The one-day agenda will feature discussions on commercializing technology in the federal labs and universities, encouraging long-term investment in technology, and the characteristics of world-class manufacturing.

The Department of Energy and NASA will participate with us together with national experts in manufacturing, finance, and research.

Sincerely,

Robert M. White, Ph.D.



0075 11"
UNITED STATES DEPARTMENT OF COMMERCE
The Under Secretary for Technology
Washington, D.C. 20230

RECEIVED

92 JAN 9 PM 12:19

January 6, 1992

OSTP
MAIL ROOM

The Honorable D. Allan Bromley
Assistant to the President for
Science and Technology
Office of Science and Technology Policy
360 Old Executive Office Building
Washington, D. C. 20506

Dear Allan,

As I mentioned in Brussels, we here in Commerce will attempt this coming year to raise the conscienceness of technology competitiveness. As a start in this direction I thought you might be interested to know that we plan to hold a "town meeting" at MIT on January 30 to stimulate the development and commercialization of technology and to encourage U.S. industry to use the information, tools, and contacts available to them to leverage the Federal research effort. The one-day agenda will feature discussions on commercializing technology in the federal labs and universities, encouraging long-term investment in technology, and the characteristics of world-class manufacturing.

The Department of Energy and NASA will participate with us together with national experts in manufacturing, finance, and research.

Sincerely,

Robert M. White, Ph.D.

"INVITATION FOR DR. BROMLEY"

TYPE: INVITATION

DOCUMENT NUMBER: 9200059

ORIGINATOR: 02

SPEECH: YES NO

FROM: LANDER, Eric: KEYSTONE CENTER

DATE OF EVENT: 08/15/92 THRU: 08/20/92
TENTATIVE DATES:

LOCATION OF EVENT: KEYSTONE, COLORADO

TIME OF EVENT:

SUBJECT: AN INVITATION TO ATTEND THEIR "SCIENTIST TO
SCIENTIST" COLLOQUIUM.

RSVP: 01/21/92

CONTACT PERSON:

CONTACT NUMBER: 617-258-5192

INVITATION ACCEPTED?

~~YES~~

NO

COPIES TO: PHYSICAL SCIENCES
INDUSTRIAL
LIFE SCIENCES

REMARKS:

CLOSED

DATE OF LETTER: 01/03/92

DATE RECEIVED: 01/07/92

FILE: P-INVITATION

THE WHITE HOUSE
WASHINGTON

January 14, 1992

Dear Dr. Lander:

Thank you for your letter of January 3 inviting me to attend the 1992 Scientist to Scientist Colloquium scheduled for August 15-20, 1992, in Keystone, Colorado. My apologies for the belated response.

Your list of topics for discussion is a good one and I sure you will have many stimulating sessions. Unfortunately, that particular week on my calendar is not a good one so I must regretfully decline.

I appreciate your thinking of me and would like to offer my best wishes for a successful colloquium.

Sincerely yours,

A handwritten signature in dark ink, reading "D. Allan Bromley". The signature is fluid and cursive, with a large, stylized initial "D".

D. Allan Bromley
The Assistant to the President
for
Science and Technology

Dr. Eric Lander
Chairman
1992 Scientist to Scientist
Colloquium Steering Committee
Keystone Center
2033 M Street, Northwest
Suite 900
Washington, D.C. 20036

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Executive Director
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 The DuPont Merck Pharmaceutical Company
 James L. Peterson, Ph.D.
President
 The Science Museum of Minnesota
 Walter R. Quastrom, Ph.D.
Vice President
 Environmental Affairs and Safety
 Amoco Corporation
 Elizabeth Raisbeck
Senior Vice President
 Regional and Government Affairs
 The National Audubon Society
 George B. Rathmann, Ph.D.
Chairman
 ICOS Corporation
 Nicholas L. Reding
Executive Vice President
 Monsanto Company
 Gresham Riley, Ph.D.
President
 The Colorado College
 James Gustave Speth
President
 World Resources Institute
 Lynn R. Williams
International President
 United Steelworkers of America



RECEIVED

92 JAN 7 P 2:13

OSTE
MAIL ROOM

0059
ENV
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Vice President of Research
 SmithKline Beecham Laboratories
 David T. Buzzelli, Vice Chairman
Vice President
 Environment, Health and Safety
 The Dow Chemical Company
 J. Peter D. Hooper, Ph.D., Vice Chairman
Vice President and Associate Director
 for External Affairs
 Woods Hole Oceanographic Institution
 Joan D. Manley, Vice Chairman
Group Vice President
 Time Inc. (Retired)
 Robert W. Craig
 President
 The Keystone Center

January 3, 1992

Honorable Allan Bromley
 Assistant to the President for
 Science and Technology
 17th St. & Pennsylvania Ave., NW
 Room 358
 Washington, D.C. 20506

Dear Dr. Bromley:

This past August something unusual happened at The Keystone Center in Keystone, Colorado. A small Scientist to Scientist Colloquium was held with the explicit purpose of bringing together top scientists who rarely communicate with each other. The idea clearly filled a need--it attracted leading biologists, chemists, physicists, mathematicians, and many scientists pursuing interdisciplinary work. In fact, over half of those invited agreed to attend under a provocative condition--only those who agreed to attend the entire five days at Keystone would be accepted.

Structured as a series of presentations covering a variety of "hot" subjects, the Colloquium obviously generated enthusiastic discussions among the participants. But perhaps the most memorable moments of the Colloquium were the interdisciplinary discussions that evolved during meal times and in the hallways. One prominent physicist was overheard saying, "I wonder if it's too late for a career switch to biology." Several participants commented that this was the best scientific meeting they had ever attended. While clearly an exaggeration, this comment illustrates the enjoyment and scientific enlightenment that The Keystone Center was trying to promote. All in all, the participants felt strongly that the 1991 Colloquium was an unqualified success and encouraged The Keystone Center to organize a similar Colloquium for 1992.

P.O. Box 8606
 Keystone, Colorado 80435-7998
 303 • 468 • 5822
 Fax: 303 • 262 • 0152
 Telex: 403098 KEYSTONE UD

2033 M Street, NW, Suite 900
 Washington, DC 20036
 202 • 872 • 0160
 Fax: 202 • 785 • 0892

Honorable Allan Bromley
January 3, 1992
Page Two

On behalf of the Keystone Center and the 1992 Scientist to Scientist Steering Committee, I am pleased to invite you to attend the 1992 Scientist to Scientist Colloquium in Keystone, Colorado during August 15-20, 1992.

To reiterate, the Colloquium is designed to be a forum where leading scientists from a variety of disciplines can gather and exchange scientific perspectives among their peers. It is an opportunity for scientists to learn about recent developments and breakthroughs, often from those individuals who are making the discoveries. The hope is that learning about advances outside one's own field will lead to better communication between disciplines and encourage the application of new ideas or approaches.

The agenda for the 1992 Colloquium includes the following topics:

TOPICS

- 1) Immunology
- 2) High-precision Physics
- 3) Evolution
- 4) Computation
- 5) Chemistry
- 6) Astrophysics
- 7) A Science and Society Panel

TOPIC CHAIRS

Dr. Leroy Hood
Dr. Norman Ramsey
Dr. Ford Doolittle
Dr. Edward Feigenbaum
Dr. Berni Alder
Dr. Margaret Geller

The topic chairs for each session are currently in the process of choosing two speakers to present their work and their science. Sessions are designed to encourage discussions and feedback, particularly from participants of other disciplines. In addition, the week will provide ample opportunity for participants to enjoy meals together and engage in outdoor pursuits, both of which often promote further discussion and debate.

I hope you will be able to join us for this week of discussion and interaction. We encourage you to bring your families to enjoy summertime in Summit County. When presentations are not scheduled, there is hiking, fly-fishing, rafting, horseback riding, and many other activities. The Keystone Center and the Keystone Resort will assist in scheduling these activities. Furthermore, there will be various formal and informal social and extra-curricular arrangements designed to facilitate maximum interactions among participants.

Honorable Allan Bromley
January 3, 1992
Page Three

To enhance the interactive nature of the Colloquium, the Steering Committee extends this invitation only to those who will commit to attending the entire meeting, from Saturday evening through Thursday morning. As a result, all attendees will know that no "drop-ins" will occur. While this policy will deprive the Colloquium of some outstanding attendees, the Steering Committee feels that the quality of the Colloquium depends on a willingness to participate in all sessions, especially those outside of one's own field. In short, the obligation is not merely to expound, but extends to being a part of all audiences.

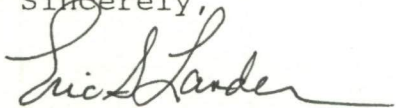
There is no fee to attend this Colloquium. The Keystone Center, a non-profit organization, has secured funds from various foundations, corporations, and government agencies to sponsor this meeting. Participants are responsible for covering their own travel and lodging expenses. For those individuals employed by a non-profit or an academic organization, The Keystone Center does have limited funding available to provide financial assistance. Unfortunately, The Keystone Center is unable to provide support for spouses or children, although they are welcome and encouraged to come.

Enclosed please find a reservation form which you can mail or fax to Bill Urban by **January 31, 1992**. The favor of a reply is requested.

If you have any questions in regards to the Colloquium, please contact me at (617) 258-5192 or Robert Craig, President of The Keystone Center, at (303) 468-5822. Logistical questions can be directed to Bill Urban at The Keystone Center.

I think you will find this event to be a stimulating and exciting experience, and we look forward to your participation and an enlightening week this coming August.

Sincerely,



Dr. Eric Lander, Ph.D.
Chairman

1992 Scientist to Scientist Colloquium Steering Committee
Member
The Whitehead Institute for Biomedical Research

Enclosures: List of 1992 Colloquium Steering Committee Members
Description of The Keystone Center
Reservation Form
Financial Support Form

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President
The Science Museum of Minnesota
Walter R. Quastrom, *Ph.D.*
Vice President
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Amoco Corporation
Elizabeth Raisbeck
Senior Vice President
Regional and Government Affairs
The National Audubon Society
George B. Rathmann, *Ph.D.*
Chairman
ICOS Corporation
Nicholas L. Reding
Executive Vice President
Monsanto Company
Gresham Riley, *Ph.D.*
President
The Colorado College
James Gustave Speth
President
World Resources Institute
Lynn R. Williams
International President
United Steelworkers of America



THE KEYSTONE CENTER

The Keystone Center is a national non-profit organization focused on science and public policy. The Center, founded in 1975, seeks to bring people together to solve problems, enhance understanding and appreciation of the natural world, encourage scientific inquiry, and develop consensus on important, complex, and controversial public policy issues.

The Keystone Center has three components. **The Science and Public Policy Program** facilitates the resolution of national and international public policy conflicts through the use of an innovative consensus dialogue process. **The Keystone Science School Program** provides residential natural science education programs for students of all ages with emphasis on sound scientific understanding of nature and our relationship to the environment. **The Keystone Symposia on Molecular and Cellular Biology** conducts meetings exploring the frontiers of biology and intersections between molecular and cellular biology and biomedical research.

The Center has offices in Keystone, Colorado and Washington, D.C. The Center's programs are funded by grants from foundations, corporations, government, and individuals.

Ralph E. Christoffersen, *Ph.D.*, *Chairman*
Vice President of Research
SmithKline Beecham Laboratories
David T. Buzzelli, *Vice Chairman*
Vice President
Environment, Health and Safety
The Dow Chemical Company
Charles D. Hollister, *Ph.D.*, *Vice Chairman*
Vice President and Associate Director
for External Affairs
Woods Hole Oceanographic Institution
Joan D. Manley, *Vice Chairman*
Group Vice President
Time Inc. (Retired)
Robert W. Craig
President
The Keystone Center

P.O. Box 8606
Keystone, Colorado 80435-7998
303 • 468 • 5822
Fax: 303 • 262 • 0152
Telex: 403098 KEYSTONE UD

2033 M Street, NW, Suite 900
Washington, DC 20036
202 • 872 • 0160
Fax: 202 • 785 • 0892

1992 Keystone Scientist to Scientist Colloquium
Steering Committee List

Chairman:

Dr. Eric Lander
Member
The Whitehead Institute for Biomedical Research

Co-Chairman:

Dr. Ronald Cape
Chief Executive Officer
Cetus Corporation

Members:

Dr. Eric Adelberger
Professor of Physics
University of Washington

Dr. Berni Alder
Group Leader
Lawrence Livermore Laboratory

Dr. Ronald Breslow
Mitchill Professor of Chemistry
Columbia University

Dr. Mary Clutter
Assistant Director
National Science Foundation

Mr. Robert Craig
President
The Keystone Center

Dr. Edward Feigenbaum
Professor of Computer Science
Stanford University

Dr. Margaret J. Geller
Professor of Astronomy
Harvard/Smithsonian Center for Astrophysics

1992 Keystone Scientist to Scientist Colloquium
Steering Committee Members
Page Two

Dr. David Gross
Professor of Physics
Princeton University

Dr. Leroy Hood
Director
NSF Center for Molecular Biotechnology
California Institute of Technology

Dr. Daniel Kevles
Professor of Humanities
California Institute of Technology

Dr. Gilbert Omenn
Dean
School of Public Health/Community Medicine
University of Washington

Financial Support Application Form
for
The 1992 Keystone Scientist to Scientist Colloquium

If you are employed by a non-profit or academic organization and would like to apply for consideration for financial support, please complete the following:

Name: _____

Airport from which you plan to depart: _____

Please understand that the funds that The Keystone Center has at its disposal are limited. The Keystone Center would greatly appreciate participants exploring other possible avenues of support.

The Keystone Center will contact participants applying for financial support in mid-February.

Please mail or fax this form to:

Bill Urban
The Keystone Center
P.O. Box 8606
Keystone, CO 80435-7998
Phone: (303) 468-5822 Fax: (303) 262-0152

Reservation Form
for
The 1992 Keystone Scientist to Scientist Colloquium

Please complete and return the following by January 31, 1992:

Name: _____

_____ I plan to attend the 1992 Keystone Scientist to Scientist Colloquium, August 15-20, 1992.

_____ I do not plan to attend the 1992 Keystone Scientist to Scientist Colloquium, August 15-20, 1992.

If attending, please complete the following:

Title: _____

Organization: _____

Work Address: _____

Alternative Summer Address (if applicable):

Applicable dates for summer address:

Work Phone: _____

Work Fax: _____

Home Phone (for emergencies only): _____

Name of spouse (if attending): _____

Spouse Affiliation (if applicable): _____

Names and ages of children (if attending):

Scientist to Scientist Colloquium Reservation Form
Page Two

Airline/Ground Transportation

The Keystone Center receives group discount rates through Greenwood Travel, located in Denver, CO. Please contact Elizabeth or Lindsay at 1-800-523-2642 to make reservations.

Stapleton Airport in Denver is the closest airport to Keystone. A shuttle service runs between Denver and Keystone that takes approximately 1 1/2 hours each way. Reservations for the shuttle can also be made through Greenwood Travel.

Lodging

The Keystone Center will make hotel reservations at the Keystone Resort for all participants to ensure a group discount rate. Please note your room preference below:

Arrival Date: _____

Departure Date: _____

_____ Single Room (\$115/night) _____ Double Room (\$125/night)
_____ 1 Bedroom Condo (\$148/night)
_____ 2 Bedroom Condo (\$195/night)

Participants that are receiving support from The Keystone Center will be supported at the rate of \$115 per night for lodging.

Credit Card: _____

Card #: _____

Date of Expiration: _____

Your credit card number will ensure your hotel reservations. If you cancel your reservation after July 12, 1992, you will be billed for any cancellation fees charged to The Keystone Center.

Please mail or fax this form to:

Bill Urban
The Keystone Center
P.O. Box 8606
Keystone, CO 80435-7998
Phone: (303) 468-5822 Fax: (303) 262-0152