

Industry Representatives Review AMPP During FMS Workshop

Industry representatives took advantage of an opportunity to review the Advanced Materials and Processing Program (AMPP), the recently announced Presidential Initiative in materials, during an April workshop hosted by the Federation of Materials Societies. About 80 participants, equally distributed between government and industry, listened to overview talks by Michael Bowman, vice president and general manager, fibers, E.I. du Pont de Nemours and Company; Karl Erb, acting associate director, White House Office of Science and Technology (OSTP); and Lyle H. Schwartz, director of NIST's Materials Science and Engineering Laboratory. Participants then shared views and exchanged ideas in concurrent sessions on three topics. The first addressed one of the AMPP's strategic objectives, to "bridge the gap between innovation and application of advanced materials technologies." The second covered regulatory and other barriers to the use of new materials, and the third, the matter of prioritizing materials R&D.

Discussions centered more on the development of applications for advanced materials and the government's role in assisting that development than on the role of basic science in the process. Evidence of the tough financial conditions being experienced by advanced materials businesses also permeated the discussions. According to industry representatives, many companies have logged years of R&D investment without sufficient sales. Current demand for advanced materials is also low, they said, partly because of a declining economy and defense budgets and partly because technical designers require substantial databases to demonstrate performance or cost effectiveness.

Bridging the Gap

Comments at the workshop revealed that there is still a clear need to increase the frequency and quality of government, academic, and industry interaction and communication. More formal communication mechanisms were recommended in order to provide strategic guidance to the long-term development of the AMPP. One suggestion was to establish permanent advisory groups from industry and academe to provide formal input to the annual review process. The OSTP's FCCSET (Federal Coordinating Council for Science and Engineering Technology) was recognized as having become the focal point for planning cross agency activities.

Participants supported the need for industry and government to continue the trend toward innovative relationships. Consortia formed by end users to develop generic new materials were encouraged. Government incentives to support these consortiums could be very important, they said, but antitrust legislative relief may also be required to make the efforts more effective, especially to create consortia beyond the generic R&D phase.

Identifying Barriers

Reducing regulatory and contractual barriers (the imposition of cost accounting standards on commercial companies who want to address military applications, for example) would facilitate the use of advanced materials, said attendees in this session. This group reviewed technical, economic, legal/administrative, and political/cultural barriers, and identified the following barriers to the use of advanced materials:

1. Too little emphasis is placed on solving engineering problems compared with advancing the field of materials science;
2. Current tax laws discourage long-range investment; and
3. Federal acquisition rules require separate bids for design stages and production stages of projects.

Recommendations were to:

1. Add economic and commercial policymakers to the current R&D policymakers forming AMPP or, said participants, this initiative will remain too low in the overall government priority planning;
2. Add economic incentives which include accelerated depreciation, and favorable capital gains treatment specifically directed at the equipment and industry supporting advanced materials;
3. Provide new standards and databases for characterizing the performance of new materials;
4. Provide funding for proof-of-concept demonstrations for defense and nondefense applications.

Prioritizing Materials R&D

The workshop group challenged to address materials priorities was not able to make specific recommendations. They acknowledged the degree of difficulty in assessing the wide range of government agency missions and trying to find equally wide-ranging industry groups that could take a comprehensive overview in prioritizing. As a practical matter, the group encouraged the careful review of the work done by the Aerospace Industry Association (AIA) in the area of composites which was developed as a part of its critical

technology review. Similar efforts by other trade and professional societies to develop roadmaps of future federal funding priorities could be used effectively by OSTP and FCCSET, they said.

The FMS workshop was co-sponsored by the U.S. Advanced Ceramics Association, the Suppliers of Advanced Composite Materials, and the Society of Advanced Materials and Process Engineers.

MRS Office of Public Affairs
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U.S. Scientists Recommend Swift Action to Support Former Soviet Union Science

The U.S. government should act "immediately and aggressively" to help reorient the basic science and technological capabilities of the former Soviet Union under a new political system and stem the "brain drain" of many Soviet scientists looking beyond their borders for lucrative jobs, according to a group of U.S. scientists and engineers. Co-chairs of the group said, "Time is of the essence" in a letter to D. Allan Bromley, adviser to President Bush for science and technology.

A meeting, held March 3 at the National Academy of Sciences (NAS) with more than 120 scientists and engineers, was requested by Bromley for advice on what steps the U.S. government might take in preserving science in the former Soviet Union. The resulting recommendations were presented to Bromley March 13.

Recommendations concerning the Commonwealth of Independent States (CIS) fall into four areas:

- **Weapon Scientists and Engineers:** An International Science and Technology Center in Moscow, already agreed to by Europe, Russia, and the United States should be established quickly for scientists and engineers with weapons expertise, promptly funded by at least \$25 million from the Department of Defense (DOD). A main objective would be to help the former Soviet Union convert from a military-based economy to a civilian one. Projects would also include safe interim storage of nuclear weapons; environmental cleanup and monitoring; nuclear safety; and studies in civil energy, transportation, and telecommunications.

- **Basic Research:** Nonweapon scientists should be provided \$5-\$10 million over the next six months as research partners for U.S. agencies. This money would be part of the \$25 million from DOD.

- **Commercialization of Technology:** The NAS group pointed out that both U.S. and CIS policies prevent successful com-

mercialization of technology in the former Soviet Union. Property ownership rights, intellectual property rights, and ruble convertibility issues need to be clarified. U.S. interests should focus on the importance of high technology in the CIS's transition to an open market economy. Timing is also an issue: The "window of opportunity for U.S. commercial interests to draw on FSU [former Soviet Union] S&T achievements may close as other countries select the best commercial targets," the group said.

■ **Interdisciplinary Research:** The United States should endeavor to prevent depreciation or loss of invaluable scientific resources in the CIS, and make efforts to streamline and spur collaborative interdisciplinary research among U.S. and CIS scientists. Funding should also be increased to federal agencies currently collaborating with CIS research facilities.

In addition, a special fund of up to \$100 million should be established to help replenish and refurbish CIS equipment, journals, and books used in laboratories. Much of this aid would be sought from bilateral and multilateral assistance agencies.

DOE, Computer Firms Agree on Model CRADA

An agreement facilitating cooperation between private and governmental computer R&D has been signed by 12 U.S. computer companies and the Department of Energy (DOE). The accord includes a model Cooperative Research and Development Agreement (CRADA) that can be used by federal laboratories and any U.S.-based computer company as a pattern for negotiating a specific agreement for a computer hardware or software R&D project. "This agreement will greatly simplify the review of individual CRADAs because a number of common issues have been discussed and settled up front," said Energy Secretary James D. Watkins.

While DOE laboratories have signed more than 90 CRADAs to date, few have involved computer R&D. The letter of agreement and model CRADA will assist national laboratories to carry out their technology transfer mission, making R&D advances available for commercialization computer companies. Topics covered in the model CRADA include software development, U.S. economic benefits, and product liability. The letter of agreement also represents a step by DOE to meet the goals of the government's High Performance Computing and Communications Program, designed to accelerate the commercial availability and use of the next generation of high-performance computers

and networks.

DOE laboratories involved in the talks were Argonne National Laboratory, Lawrence Livermore National Laboratory, Los Alamos National Laboratory, Oak Ridge National Laboratory, and Sandia National Laboratories. The 12 computer firms that signed the letter of agreement are Apple Computer, AT&T, Compaq, Control Data, Cray Computer, Data General, Digital Equipment, Hewlett-Packard, International Business Machines, Sun Microsystems, Tandem Computers, and Unisys.

Under a CRADA, both the government laboratory and a private company may provide personnel, services, facilities, or equipment to conduct research. The company may also provide funds, but the laboratory does not provide any funding to the company.

Report Cites Need for Pre-Commercial R&D at Federal Level

U.S. science and technology policy must move beyond its traditional focus on basic research to include pre-commercial R&D, research preceding the making of prototypes, according to the report, *The Government Role in Civilian Technology: Building a New Alliance*, released by a panel of the National Academies of Sciences and Engineering and the Institute of Medicine.

Panel head Harold Brown, chair of Johns Hopkins University's Foreign Policy Institute in Washington and former U.S. Secretary of Defense said, "We need to build on our strengths in technology to forge a new alliance between government and industry in pre-commercial areas." According to the panel, the federal government must recognize market failure and underinvestment in pre-commercial research.

Factors that point to a need for the new policy include technical competence overseas, the increased complexity of R&D and technology commercialization.

Specific guidelines in the report for forming the new policy are (1) cost-sharing between government and industry, (2) industry involvement in project initiation and design, (3) distance from the political process, (4) projects to be open to foreign firms characterized by substantial contribution to the project and to U.S. Gross Domestic Product, and (5) a diversified set of R&D areas.

The panel concluded that Congress and the administration should consider establishing a \$5 billion "Civilian Technology Corporation" (CTC) to increase the rate at which new products and processes are commercialized. The quasi-public CTC

would be funded through a one-time congressional appropriation and managed by a board appointed by the President and confirmed by the Senate. The government would support pre-commercial investment through the CTC by creating joint ventures with private industry without interfering with corporate management strategies or with the market forces that drive economic growth. Also, CTC projects would be designed and initiated by private firms rather than the government.

Among other recommendations, the report proposes reaffirming the Defense Advanced Research Projects Agency's role in developing technologies with both military and civilian uses, especially information technology; selection of certain federal laboratories to work with private firms to enhance technology transfer; and creation of a new "Industrial Extension Service" at the Department of Commerce to speed the use of new technologies by U.S. industry.

NSF Notes EPSCoR Funds Competitive Research Among 11 States

The National Science Foundation (NSF) will award more than \$13.7 million in FY 1992 to 11 states and Puerto Rico through its Experimental Program to Stimulate Competitive Research (EPSCoR). Alabama, Arkansas, Kentucky, Louisiana, Maine, Mississippi, North Dakota, Oklahoma, South Carolina, South Dakota, Wyoming, and Puerto Rico will each receive \$1 million to \$1.3 million per year over three years to strengthen academic departments and support improved research activities. In addition to NSF support, the recipients will provide nearly \$93 million to support the improvements.

The EPSCoR initiative is designed to help governments and their academic institutions improve the quality of science and engineering research, increase the number of scientists and engineers that are able to compete successfully for Federal grants, and foster long-term improvements in research and education. These goals have been selected by the states and merit-reviewed by NSF. States are eligible to compete for EPSCoR funding based on the amount of NSF support previously received for academic research. □

