

FMS Conference Issues Materials Policy Recommendations

Recommendations from the FMS Conference Workshops

International Competitiveness

Identify key materials processing technologies. Increase resources for industry/government collaboration. Review existing vehicles for leveraging government resources (such as the Department of Energy superconductivity pilot centers) with the intent of extending the successful ones. Modify legal (such as anti-trust) barriers that preclude effective communication and collaboration between the government and the private sector. Expand mission statements for federal laboratories to include a responsibility to enhance U.S. competitiveness in materials processing through jointly funded industry/government cooperative research projects.

Government Role in Processing

Develop a national materials agenda with a government entity to provide venture capital, an expanded leveraging of federal and university R&D by industry, and redefined federal laboratory missions to foster civilian commercial technology. Have the Department of Transportation maintain an aggressive materials program to improve highway and bridge materials for rebuilding the national infrastructure.

Cooperative Ventures

Establish cooperative research programs in synthesis and processing. Improve technology transfer. Extend the DOE's superconductivity pilot center concept to include materials synthesis and processing in general. Increase leveraging of national facilities and cooperative programs. Establish university centers of excellence in processing.

Materials Education

Establish a materials processing practice school (engineering internships in industry for graduate students, modeled after the successful MIT Engineering Practice School) to help transfer new knowledge to industry and to develop future corporate managers who understand technology. Incorporate processing oriented courses in the undergraduate materials curriculum.

The 11th Biennial Conference on a National Materials Policy was held in Kingsmill, Virginia, June 11-14, 1990 and sponsored by the Federation of Materials Societies. The conference's theme, "Developing a Vision for Materials Processing in the 1990s: The Role of National Policy," drew approximately 70 materials experts from government, industry, and universities. The three days of plenary sessions and workshops focused on ways to enhance the United States' capability in materials synthesis and processing.

Chaired by Robert Laudise of AT&T Bell Laboratories, the conference included presentations from national leaders in materials processing, materials education, and international competitiveness followed by four concurrent workshops titled Cooperative Ventures: Status and Opportunities; Government Role in Fostering Processing Science, Technology, and Competitiveness; Education for National Processing Efficiency; and International Competitiveness: What's Going On? What Can the U.S. Learn?

A recurring theme during the workshop discussions was the weakness in U.S. competitiveness in the "middle ground" between research and commercialization. There were repeated calls to broaden government agency missions to include increased emphasis on cooperative programs with industry and to leverage government funds and facilities for precompetitive R&D with industry. Participants commented that in other nations,

the expenditure of modest resources to encourage cooperation between government and industry seems to act as a powerful catalyst in effectively converting science and technology into commercial products.

The workshops identified many positive themes such as new legislation that facilitates technology transfer and cooperative research between industry and government, the substantial leveraging which has already occurred in cooperative ventures with industry, and the overall strength of U.S. basic research and university education. On the other hand, it was reported that only 12% of materials faculty have a research orientation toward synthesis and processing, and it is apparent that substantial new investment in materials R&D may not be achievable in the present economic climate.

There appeared to be strong support for the current emphasis on materials synthesis and processing as recommended in the National Research Council's MS&E Study, *Materials Science and Engineering for the 1990s: Maintaining Competitiveness in the Age of Materials*, but this support was tempered by the realization that national cooperation on an unprecedented scale will have to be achieved in order to respond effectively. This conference and the ongoing regional meetings on the MS&E Study are part of a growing effort to achieve that unity in the materials community.

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1991

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SYMPOSIUM A: AMORPHOUS SILICON TECHNOLOGY - 1991

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SYMPOSIUM D: ATOMIC LAYER GROWTH AND PROCESSING

SYMPOSIUM E: LOW ENERGY ION BEAM & PLASMA MODIFICATION OF MATERIALS

SYMPOSIUM F: RAPID THERMAL AND INTEGRATED PROCESSING

SYMPOSIUM G: MATERIALS RELIABILITY ISSUES IN MICROELECTRONICS

SYMPOSIUM H: MECHANICAL BEHAVIOR OF MATERIALS AND STRUCTURES IN MICROELECTRONICS

SYMPOSIUM I: CONTAMINATION CONTROL IN MICROELECTRONICS

SYMPOSIUM J: MATERIALS SCIENCE OF HIGH TEMPERATURE POLYMERS FOR MICROELECTRONICS

SYMPOSIUM K: POLYMERIC ALLOYS

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SYMPOSIUM M: POLYMERIC MATERIALS FOR INTEGRATED OPTICS AND INFORMATION STORAGE

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SYMPOSIUM S: MAGNETIC THIN FILMS, MULTILAYERS AND SURFACES

SYMPOSIUM T: MAGNETIC MATERIALS: MICROSTRUCTURE AND PROPERTIES

SYMPOSIUM U: SYNTHESIS/CHARACTERIZATION AND NOVEL APPLICATIONS OF MOLECULAR SIEVE MATERIALS

SYMPOSIUM V: MODERN PERSPECTIVES ON THERMOELECTRONICS & RELATED MATERIALS

SYMPOSIUM W: ENVIRONMENTALLY CONSCIOUS MATERIALS PROCESSING

SYMPOSIUM X: FRONTIERS OF MATERIALS RESEARCH

MEETING CHAIRS

- **A.K. Hays**, Sandia National Laboratories, Division 1834, P.O. Box 5800, Albuquerque, NM 87185; TEL: (505) 844-7632; FAX: (505) 844-1543
- **Ernesto E. Marinero**, IBM Almaden Research Center, 650 Harry Road, San Jose, CA 95120-6099; TEL: (408) 927-2016; FAX: (408) 927-2100
- **Carl V. Thompson**, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Room 13-5069, Cambridge, MA 02139; TEL: (617) 253-7652; FAX: (617) 258-8539

For detailed information on topics, how to contact symposium organizers, and how to submit abstracts, see the 1991 MRS Spring Meeting Call for Papers brochure available from: Materials Research Society, 9800 McKnight Road, Pittsburgh, PA 15237; telephone (412) 367-3003; FAX (412) 367-4373.

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Abstract Deadline: December 1, 1990