



**MATERIALS
RESEARCH
SOCIETY**

Newsletter

Volume 1, Number 1

July 1975

COMMUNICATION FROM THE PRESIDENT - "FORGING AHEAD"

I am happy to report that our Materials Research Society, having gone through the normal stage of "growing pains" is now gathering momentum. We can now look ahead to regular stimulating meetings and other activities consistent with the objectives as defined in the Society's Constitution: to serve professionals working in the field of materials science and engineering by (a) fostering interaction between those working on different classes of inorganic and organic materials, such as metals, ceramics, polymers, and electronic materials; (b) sponsoring interdisciplinary meetings of interest to materials scientists and engineers; (c) disseminating information relevant to, and focusing and expressing the interests of the materials community on educational needs and university-industry relations.

The Society's recent meeting on "Defect-Property Relationships in Solids", held at Princeton University on 24 & 25 March was successful indeed.

I consider the Princeton meeting a turning point for the Society. At that meeting our long search for filling the key position of the Executive Secretary came to a fortunate end. Mr. Aram Tarpinian of the Army Materials and Mechanics Research Center, Watertown, MA has accepted this position. In addition to his long involvement in materials science and engineering, Mr. Tarpinian, under the aegis of AMMRC, has had extensive experience in planning and organizing numerous meetings and in making all of the complex arrangements associated with technical meetings. With the appointment of Mr. Tarpinian the Society will now establish headquarters in Boston. We will communicate to you the permanent address of the Society's headquarters as soon as final arrangements are completed.

Consistent with the Constitution of the Society, I have appointed a nominating committee which has come up with slate officers announced in this Newsletter.

According to the Constitution, the nominations shall be made known to the membership by the first of July. Other nominations may be made in writing by any fifteen members: these nominations and nominees' acceptances must be in the hands of the Secretary by September 1. Ballots carrying all nominations shall be distributed to the members by October 1, and the mailed ballots shall be received until November 15.

The officers and council of the Society have considered a number of general topics for future regular meetings such as: recent advances in materials, characterization of materials, and new materials. Your suggestions for more specific or other topics will be most welcome.

With the active participation of its present and new members, I look forward to a dynamic role for the Society in the Materials Community.

H. C. GATOS
President

WASHINGTON WATCH

This column will be a regular feature of our Newsletter and through it we hope to provide the most definitive comments describing developments in Washington - in the Agencies, the Academies, and the Congress - which affect research in materials science and engineering.

The Score Card

No one can even begin to understand the national research support picture unless he knows that other set of symbols, the Aperiodic Table of Agencies. As a starter we list below the most important agencies concerned with funding materials research together with one name and telephone number. In later issues we will analyze individual agency's programs.

The Players

Basic research support mainly to Universities. All data in millions of dollars, annually, for materials work

ERDA
Div. of Physical Research
Div. of Materials Science (45M)
D. K. Stevens (202) 973-3427

USBM
Office of University Programs
C. Rampacek
M. Schwartz (202) 634-1147

DoD-Advanced Research Projects Agency
Division of Materials Sciences (20M)
C. M. Stickley (202) 694-3010

NSF
Directorate of Mathematical, Physical and Engineering Sciences
Division of Materials Research (45M)
D. E. Kagarise (202) 632-7412
Division of Engineering (10M)
T. Meloy (202) 632-5790

DoD-ONR
Office of Naval Research
Division of Materials Science (10M)
E. Salkovitz (202) 692-4407

(More applied work; higher percentage of support to industry and non-profits.)

NSF
Directorate of Applied Research
Divisions of Exploratory Research
C. R. Hauer (202) 632-7672
Div. of Advanced Productivity Res.
F. T. Sparrow (202) 632-6260
Div. of Energy Res & Tech
D. Senich (202) 632-5957

NASA
C. Deutsch (202) 755-2320

DoD-AMMRC
(Army Materials & Mechanics Res Ctr)
A. E. Gorun (617) 923-3350

ERDA (12M)
Office of Coal Research
Paul Scott (202) 523-5100

DoD-WPAFB
Wright-Patterson Air Force Base
H. M. Burte (513) 355-2802

The most recent detailed survey revealed that in FY72 there was a total of about \$75 million in Federal support of materials research in Universities and probably \$280 million in all. Corresponding estimates for FY76 is published by the Federal Council on Engineering Research, show total Federal support of Research and Development in Materials to be \$500 million. It is likely that much of this apparent increase represents a redefinition of materials R&D for accounting purposes rather than a large increase in the total level of Federal support.

The funding slopes in recent years in materials research have been ahead of those for overall research funding by the Federal Government. One can expect that as the system responds to the demand for more "applied" research, this trend will continue in the short term. Greatest disappointment of the last few years has been the failure of the newer agencies, such as EPS, DOT, HUD, etc., to appreciate the significance of materials research to their own fields and to pick up the manpower and dollar support as the DoD and NASA felt the impact of changing national priorities.

Advise and (Dis)content

The problem seems to be that everyone is advising someone but no one seems to pay much heed to the advice even if paid for. However, if you want to be in on the know, you must follow the major reports from advisory bodies in Washington. We will call your attention to these as they emerge. Among these the most recent interesting one is:

*Materials and Energy in the "Near Term". Study by the National Academy of Sciences.
Order from National Technical Information Service, Springfield, VA 22151.*

REPORT ON THE CONFERENCE

Report on the Defect-Property Relationships in Solids held at Princeton University 24 & 25 March 1975.

The Defect-Property Relationships in Solids Conference, sponsored under the auspices of the Materials Research Society, Office of Naval Research, and Princeton University was very successful judging by the quality and number of papers submitted, attendance, and discussions. The papers were grouped into sessions concerned with defect-property relations in selected classes of materials rather than defect-type or particular property. Since space limitation in this Newsletter makes it impossible to present the highlights of each individual paper, only general highlights are presented here.

It is apparent that glassy metals are now an exciting new class of materials. Several exhibit mechanical and magnetic properties which make these materials of potential technological importance. Although much is now known about the structure of these materials, the work being carried out on this class of materials is barely "scratching the surface" and much exciting scientific and development work remains to be done. Capacitance spectroscopy is emerging as an important new tool for this study and characterization of deep impurity states in semiconductors, resulting in a greater understanding of the mechanism of nonradiative recombination in semiconductors. The importance of the defect nature and characterization of heterojunction structures for LED's and detectors was emphasized and amply illustrated.

The proceedings of this Conference will be published as Vol. 4, No. 5, Journal Electronic Materials, and copies may be ordered from the Circulation Department, Plenum Press, 227 West 17th Street, New York, New York 10011.

SLATE OF OFFICERS

- For: Past President . . . H. C. Gatos, Massachusetts Institute of Technology
President R. Roy, Pennsylvania State University
Vice President K. Jackson, Bell Telephone Laboratories
Secretary W. Bottoms, Princeton University
Treasurer E. Pettrie, Eastman Kodak

- For: Member of the Council
J. Tietjen, RCA
P. Stein, University of Massachusetts
R. Laudise, Bell Telephone Laboratories
L. Esake, IBM
O. Johari, IITRI
T. Barbee, SRI
J. Hoffman, NBS
J. Wernick, Bell Telephone Laboratories
M. Myers, Xerox
I. Warsaw, NSF