
HIGH-PRESSURE CONFERENCE

MRS co-sponsors AIRAPT meeting

The MRS will co-sponsor the Ninth AIRAPT International High-Pressure Conference, to be held July 25-28 at the State University of New York in Albany. AIRAPT is the acronym of the International Association for the Advancement of High Pressure Science and Technology.

"There was unanimous enthusiasm among the Organizing Committee of the AIRAPT meeting for MRS sponsorship," said R.K. MacCrone, professor of materials science at Rensselaer Polytechnic Institute, and a member of the committee. He said AIRAPT views the collaboration of the two societies on the conference as the first step in a continuing relationship of shared meetings on topics of mutual interest. He noted the MRS will include the proceedings of the conference in its own Proceedings Series.

The Albany conference is being organized by a joint U.S.-Canada committee, and its sponsors in addition to AIRAPT and the MRS include the host university, government agencies and several industrial concerns. The program will consist of general sessions on all aspects of high-pressure research in science and technology, and specialized symposia on collective phenomena at high pressure, electronic transport properties in solids at high pressure, fluids under high pressure and high-pressure engineering and safety.

Call for Papers

General inquiries should be made to Prof. Clarke G. Homan, Department of Physics, State University of New York, Albany, NY 12222.

The general sessions will cover all aspects of high pressure in science and technology. They will be organized by a committee chaired by Norris Keller, 4452 Eads, La Jolla, CA. Panel discussions will be held on the pressure scale, organized by V. Bean; on high-pressure safety, organized by G.J. Mraz; and on high-pressure data, organized by L. Merrill.

Four symposia are planned.

Collective Phenomena

Collective phenomena are an amplified manifestation of interactions between particles. Consequently their study as a function of pressure provides a fascinating and powerful probe into interparticle interactions of all kinds. In many instances kinetics and dynamics are involved, which adds to the fascination and complexity of the subject.

The symposium **Collective Phenomena at High Pressures** will attempt to bring together the workers in this field for a coherent discussion of collective phenomena and the various dependencies - on pressure, primarily - in a series of review papers interspersed with the latest experimental and theoretical results. Topics include charge density waves, ferroelectricity, magnetism and superconductivity.

Contributions of oral and poster papers will be considered by the co-chairmen, C.G. Homan and MacCrone. Write to:

R.K. MacCrone
Material Science Department
Rensselaer Polytechnic Institute
Troy, NY 12181

Electronic Transport

Transport of charge and momentum in solids by electrons and holes obviously depends upon the freedom or binding of the electrons. The states and degree of binding that are possible depend upon the structure and the free volume available. Application of high pressure decreases the free volume available to the electron systems and changes the mobility - sometimes drastically, as in phase transitions.

The purpose of the symposium, **Electronic Transport Phenomena in Solids at High Pressure**, is to bring together experimental and theoretical workers in this field to present, discuss and correlate relatively recent observations and developments with the aim of a better understanding of the behavior of matter over a wide range of

density. The subject area will be limited to solid specimens under static or dynamic pressure at temperatures ranging from high to low, and possibly subject to superimposed conditions such as electric, magnetic or sonic fields, or to theoretical considerations applying to such conditions.

Invited speakers include K.-J. Dunn, University of California, Los Angeles; J. Schirber, Sandia National Laboratories; S. Minomura, University of Tokyo; R. Clarke, University of Michigan; B. Sundqvist, University of Umea, Sweden; and E. Iskevitch, Institute of High Pressure Physics, Moscow.

The program is being organized by co-chairmen F.P. Bundy and B.A. Lombos. Contributed papers should be submitted to:

F.P. Bundy
General Electric Research &
Development Center
P.O. Box 8
Schenectady, NY 12301

Fluids

The study of fluids under high pressure greatly helps a fundamental understanding of the behavior of matter, and of many technical processes in shock waves, thermonuclear fusion, geophysics and geochemistry, planetary and stellar science, and other fields. This study has made great progress in recent years in the magnitude of the pressure and temperature ranges, in the scope and accuracy of measurements, and in the theory.

The **Fluids Under High Pressure** symposium is intended to bring together workers in all these fields to exchange information and discuss common problems, and to illuminate all aspects of the behavior of fluids in science and technology using the techniques of high-pressure research.

Its scope will include molecular, ionic and metallic states at high pressures, and states at lower pressures if they

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include particularly illuminating aspects such as especially accurate or novel experiments or theories, states like mesophases that cannot be studied at higher pressures, and the like. Topics will include freezing and glass transitions, equilibrium properties, structural properties, physical and chemical relaxation processes, geophysical and geochemical applications, technological applications, etc.

The program is organized by co-chairmen E. Whalley and J. Jonas. Write to:

E. Whalley
Division of Chemistry
National Research Council
Ottawa, K1A 0R9
Canada

Engineering and Safety

The High Pressure Engineering and Safety symposium is the Third International High Pressure Engineering Conference, the successor

to meetings held in London in 1967 and Brighton in 1975. Unlike the other symposia of the present conference, which deal with the physics and chemistry of materials subjected to high pressures, this meeting will be concerned with the engineering aspects of generating, controlling, containing and using high pressures. For the purposes of this symposium, "high" pressure is considered as pressure exceeding about one kilobar (15,000 psi).

Sessions are planned in the general areas of:

Design, including closures, seals and the use of residual stresses.

Materials, including fatigue, fracture, environmental effects and superhard materials.

Applications, including hydrostatic extrusion and compaction and jet cutting.

Safety, including protection barricades, pressure release devices and non-destructive inspection.

The program, which will include both invited and contributed papers and utilize both lecture and poster

presentation formats, is being organized by a program committee co-chaired by D.J. Burns and D.P. Kendall. Write to: D.J. Burns

Department of Mechanical Engineering
University of Waterloo
Waterloo, Ontario
Canada

Fees

The registration fee will be US \$125, which will include the social program, banquet and published proceedings. There may be a small additional registration fee for companions to cover the cost of the social program. There may be available small grants toward the expenses of students whose expenses are not met from other funds. Applications for student grants should be sent to:

Clarke G. Homan
Physics Department
State University of New York
Albany, NY 12222

BRIEFS

PROCEEDINGS VOLUMES, which have and continue to result from several of the Materials Research Society's topical symposia, as well as from MRS-sponsored topical conferences, have been registered as a series as an irregular serial publication. Each volume will, therefore, be assigned, in addition to its own international standard book number (ISBN), a common international standard serial number (ISSN). The change permits the various abstracting services to include the MRS series in their coverage.

Authors citing work appearing in the series are advised the appropriate abbreviated form should read:

Mat. Res. Soc. Symp. Proc. Vol., Page (Year).

Source: MRS Publications Committee

HARRY C. GATOS, professor of electronic materials and molecular engineering, Massachusetts Institute of Technology - and a founder of the Materials Research Society - has been elected a member of the National Academy of Engineering.

MRS AFFILIATES WITH A I P

The Materials Research Society has become an Affiliated Society of the American Institute of Physics. Formal affiliation was unanimously approved by the MRS Council in March.

The principal immediate benefit that will accrue to MRS members is that they will qualify to receive the journals of Member and Affiliated Societies of the AIP at member rates. Longer term, the Society intends to improve its internal operations and broaden the range of professional benefits it is able to offer its members through AIP affiliation. The most widely known of AIP's publications is *Physics Today*.

The American Institute of Physics was established as a non-profit organization in 1931 for the purpose of assisting societies with an interest in physics in promoting the advancement and diffusion of the science. In general it sought to leave to constituent societies the responsibility for holding scientific meetings and offered to

assume responsibility for the publication and distribution of their journals. That remains the AIP's principal function, although now it also provides support services.

Member Societies of the AIP include the American Physical Society, Optical Society of America, Acoustical Society of America, The Society of Rheology, American Association of Physics Teachers, American Crystallographic Association, American Association of Physicists in Medicine and American Vacuum Society. Affiliated Societies include the American Geophysical Union, American Institute of Aeronautics, American Society for Metals, Electron Microscopy Society of America, Geological Society of America, Instrument Society of America and the Society for Applied Spectroscopy.

Affiliation with AIP is without cost to the Society or its members.