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## NEWS

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### MATERIALS RESEARCH SOCIETY OF INDIA

The Materials Research Society of India (MRSI) had its foundation meeting on 10 February 1989 in the Defence Metallurgical Research Laboratory in Hyderabad. This was the first time that scientists with a wide range of interests, including solid state chemistry, solid state physics, materials processing and applications, came together. The society itself was formed after considerable thought and deliberations over the past year or so among the interested scientists and engineers.

#### *Some background*

It has been said that the possession and understanding of materials and the ability to process them are the determinants of a civilization. In the world of today, materials figure extensively as an enabling parameter in every system associated with modern technologies and dominate many sectors such as transport, communications and energy. Indeed materials today are the basic resources of mankind, linked with living space, food, energy and human knowledge. In spite of this great role of materials in every endeavour, India surprisingly lags behind in this area very badly indeed—surprisingly, since leadership in the materials field should not have been a new experience for India. There are several instances of metallurgical achievements of ancient India (Chola bronze idols, the Delhi iron pillar) that make us realize that we have a rich heritage in the materials field. More than three centuries ago, India exported to western Europe nearly 6.5 tonnes of 'Wootz steel' in small lumps made by the native crucible process in the Deccan. The famous Damascus swords were made from this Indian steel. The question the Indian materials scientists and technologists can ask themselves is simply this. Can we in India attain today in the field of materials something that will match the Wootz steel record? It was the obvious overtones of such disturbing questions and also the growing realization of the needs, opportunities and challenges in the materials field that brought together a number of eminent Indian scientists to form the Materials Research Society of India.

#### *The foundation meeting itself*

Over 250 scientists and engineers, who had interest in a variety of aspects of materials, attended the foundation meeting. Prof. C. N. R. Rao explained the background to the formation of MRSI. He emphasized the fact that materials research of a high order will be the key to our success in a number of national endeavours and regretted the fact that India had lagged behind so badly in this area. He emphasized that MRSI would be independent and not be affiliated with materials research societies around the world with similar titles, nor should MRSI be considered as a regional outgrowth of an established activity abroad. It was born essentially, out of a conviction that we need to accelerate the pace of R & D in materials in India by pooling all the interdisciplinary talent, of the kind that had gathered during the foundation meeting, together. He strongly emphasized that MRSI was dedicated to stimulating an accelerated growth of indigenous R & D in the materials area in India.

This inaugural function was followed by two technical sessions dealing with the science of materials and the processing of materials. The first session, chaired by Prof. S. Ramaseshan, had presentations by Prof. T. V. Ramakrishnan on 'Condensed matter physics' and by Prof. C. N. R. Rao on 'Solid state chemistry'. They provided penetrating historical perspectives and an account of the recent scientific breakthroughs, and lucidly explained the dominant role that these disciplines will be playing in the years to come.

The next session, chaired by Dr G. Venkataraman, had presentations by Dr M. S. Valiathan on 'Biomaterials', by Prof. D. Chakravorty on 'Glasses', and by Prof. K. J. Rao on 'Ceramics'. In all these lectures there was an emphasis on bringing out the present state of materials research in India in these fields *vis-a-vis* the international status and providing a global perspective of the emerging frontiers.

The afternoon session, chaired by Mr C. V. Sundaram, was focused on the science of processing of materials. Dr R. A. Mashelkar spoke on 'Processing of polymers and composites', Prof.

K. L. Chopra on 'Thin film fabrication', and Prof. Y. V. R. K. Prasad on 'Mechanical processing of metals'. There was an emphasis in all these lectures on how an improved scientific understanding of the behaviour of materials had enabled the development of a solid base for the materials processing industry, so that materials could be tailor-made to have predetermined structures and properties.

The technical programme was topped by an evening lecture, entitled 'Engineering materials for design', by Dr V. S. Arunachalam. Dr Arunachalam spoke of his own experience concerning the development of materials and at the same time gave an excellent perspective of the challenges and opportunities in many areas, including electronic materials.

In addition to the invited and evening lectures, there was a poster session, where original results of research by a large number of materials scientists were displayed. The foundation meeting ended with a business meeting of the members of the society, who were formally enrolled at the foundation meeting. Prof. C. N. R. Rao was unanimously elected the first President. The other office-bearers elected are:

Vice-Presidents	:	Dr V. S. Arunachalam Prof. S. Ramaseshan Prof. E. C. Subba Rao Prof. S. K. Joshi Prof. K. L. Chopra
Secretary	:	Dr P. Rama Rao
Programme Secretary	:	Dr R. A. Mashelkar
Joint Secretary	:	Prof. A. S. Nigavekar
Treasurer	:	Dr S. Varadarajan

#### *Committees of MRSI*

In order to effectively and rapidly promote the growth of materials research in specific areas, it was felt desirable to constitute different groups based on individual subject emphasis. Each committee would have about 20 active members. Wherever possible, they would include young achievers, especially those who have already been recognized through the INSA Young Scientists Medal and the Associateship of the Indian Academy of Sciences. A comprehensive coverage of various topics and institutions is also proposed to be made.

Regional chapters have been constituted to promote materials research in individual regions.

#### *Objectives of the Society*

Materials Research Society of India is an interdisciplinary professional society brought into being at a juncture when there is world-wide appreciation of the critically enabling role of materials science and engineering in the design, development and performance of nearly every system associated with modern technologies in a wide spectrum of sectors like chemical industry, heavy engineering, transportation, aerospace, power generation, microelectronics and bioengineering. MRSI is designed to stimulate accelerated growth of indigenous materials research and development of a wide range of materials and their applications through the following objectives:

1. To promote active interactions among scientists, technologists and engineers who are engaged in basic research, technology development or application in service of engineering materials based on metals, ceramics, polymers and composites as well as functional materials intended for electronic, magnetic and biological applications.
2. To advance the knowledge base through continuing education programmes, training with emphasis on experimental techniques, and organization of symposia, workshops and meetings by encouraging and supporting multi-institutional involvement covering academic centres, research laboratories and industrial units.
3. To disseminate information relevant to the interests of the materials community through publications such as newsletters, journals, books and symposium proceedings.
4. To provide a professional forum for discussion of various issues related to materials, like their economic exploitation, long-term conservation, new developments and imaginative uses, and to frame recommendations for governmental consideration and formulation of materials policies.

#### *Proposed activities of MRSI*

In order to promote the cherished goal of stimulating the growth of indigenous R & D for a wide variety of materials, a number of activities have been planned by MRSI.

1. There will be an annual meeting of MRSI every year.
2. In addition there will be topical meetings. The chairmen and conveners of topical areas will help to

organize periodic meetings, which will be held at least once in two years.

3. There will be regional meetings organized by the regional bodies. It is hoped that at least one regional meeting in two years can be organized.

4. The topical groups will organize winter sessions, tutorial schools in selected areas such as ceramics, high  $T_c$  materials, thin films, etc. These can be held in co-operation with the regional chapters.

5. MRSI will prepare assessment reports on current developments and future possibilities in materials, their processing, and production and use. It is hoped that this will catalyse major initiatives in the country and assist the government bodies in formulating new materials policy, as and when required.

6. MRSI will also hold diploma/associateship examinations. These would be called DMRS or AMRS respectively. Candidates with BSc or similar qualifications will be considered eligible for these diploma/associateship examinations.

7. There are many active societies on material research in the world today. It is proposed that there will be an active collaboration of MRSI with these other societies.

8. To disseminate information about the activities of the society to its membership, a newsletter will be

published by MRSI. Initially it is planned to be half-yearly; the frequency could be increased later. Dr R. A. Mashelkar will be the editor and Dr A. J. Nigavekar and Dr S. B. Ogale of Pune University will be the associate editors.

9. In order to promote the whole activity of research publications in materials, it was proposed to have the journal *Bulletin of Materials Science*, published by the Indian Academy of Sciences in co-operation with INSA, as the 'house journal' of MRSI. The Indian Academy of Sciences has already agreed to this proposal. Dr P. Rama Rao will be the editor of the journal and Dr K. J. Rao will be the associate editor. A newly constituted broad-based editorial board is expected to bring in a dimensional change in this journal and help stimulate indigenous R & D in materials considerably.

#### *Call for membership*

The eventual success of MRSI will depend upon the number and the quality of membership and also the vigour of the activity that MRSI will be able to pursue. It is hoped that everyone interested in materials in India will join as a member of MRSI and help promote indigenous R & D in materials.