

MRS-I Hosts Seventh Annual General Meeting

The Bangalore Chapter of MRS-I hosted the Seventh Annual General Meeting of Materials Research Society of India (MRS-I) at the Indian Institute of Science (IISc), Bangalore, February 1–3, 1996. The meeting was attended by nearly 300 participants representing many institutes, universities, laboratories, and industries.

A. Sridharan, Deputy Director of IISc, while welcoming the members, stated the importance of materials science in all aspects of engineering. S.K. Joshi (JNCASR, New Delhi), President of MRS-I, gave the inaugural address and gave a brief account of his research on various aspects of condensed matter physics, including lattice dynamics, disordered systems, and superconductivity. C.N.R. Rao, Founder President of MRS-I, and P. Rama Rao, Past-President of MRS-I, highlighted some of the developments in materials technology which play a major role in society.

MRS-I presented its Distinguished Materials Scientist of the Year Award for 1996 to R. Chidambaram, Chair of the Atomic Energy Commission, in recognition of his outstanding contributions in the field of materials science. Chidambaram delivered the honor lecture entitled, "Future Materials: The Indian Nuclear Perspective." In the lecture he talked about the nuclear technology, its growth, current status, and future programs, with special reference to India.

P. Rama Rao received the second MRS-I-IISc Superconductivity and Materials Science Prize. He delivered a lecture on "An Outline of Research on Material Behavior Using Metals as Model Materials." K.J. Rao (IISc, Bangalore) and J.V. Yakhmi (Bhabha Atomic Research Centre, Bombay) received the annual MRS-I-ICSC Superconductivity and Materials Science Annual Prizes.

A special feature of the MRS-I meeting in 1996 was an invited lecture by Prof. de Gennes, Nobel Laureate. He lectured on "Principles of Adhesion." This was the first Sir Isaac Newton Lecture of the Jawaharlal Nehru Centre for Advanced Scientific Research and was jointly arranged with IISc and MRS-I.

The technical sessions included 14 lectures by MRS-I medal recipients and 17 talks by guest speakers. A special session addressed the issues concerning functional materials. There were also 165 poster presentations which covered the recent research work carried out by the participants at their institutions. Three posters were selected for best poster prizes.



Sitting (L to R): Vijay Kumar, A.K. Grover, B.M. Arora, S.K. Joshi, T. Nagarajan, K.J. Rao, R.P. Singh. Standing (L to R): Subhash Chandra, R.G. Sharma, A.K. Raychaudhuri, Vikram Jayaram, U.V. Varadaraju, J.V. Yakhmi, A.M. Umarji, E.V. Sampathkumaran, K. Vijayamohanam.

Guest Lectures on Functional Materials

"Functionally Modulated Solid Electrolytes," **K.T. Jacob**, IISc, Bangalore.

"Magnetic Materials: Present & Future," **S.K. Date**, National Chemical Laboratory, Pune.

"Bio-Materials," **R. Sivakumar**, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum.

"Integrated Ferroelectrics," **S.B. Krupanidhi**, IISc, Bangalore.

"Functionally Modified Polymer Surfaces," **S. Sivaram**, National Chemical Laboratory, Pune.

"Recent Trends in the Exploration of Manganese Perovskites with Colossal Magnetoresistance Properties," **B. Raveau**, Crismat-Isma, France.

MRS-I Medal Lectures 1996

"Materials for Gas Sensors: Some Recent Developments," **Subhash Chandra**, National Physical Laboratory, New Delhi.

"Nuclear Techniques Applied to Materials Characterization," **T. Nagarajan**, Madras University, Madras.

"Novel Aspects of Vortices in Superconductors," **A.K. Grover**, TIFR, Bombay.

"Giant Magnetoresistance in Perovskite Oxides," **Arup Kumar Raychaudhuri**, IISc, Bangalore.

"Development of Superconducting Materials and Magnets," **R.G. Sharma**, National Physical Laboratory, New Delhi.

"Technological Development of Ceramic Composites," **Vikram Jayaram**, IISc, Bangalore.

"Strategies for Low-Thermal Expansion Ceramics," **Arun M. Umarji**, IISc, Bangalore.

"Intercalation Chemistry in 3-D Network Structure," **U.V. Varadaraju**, India Institute of Technology, Madras.

"First Principles Studies of Clusters and Cluster Materials," **Vijay Kumar**, IGCAR, Kalpakkam.

"Trends in Rare-Earth Materials Research," **E.V. Sampathkumaran**, TIFR, Bombay.

"Polymeric Turbulent Drag Reduction: A Materials Science and Engineering Approach," **R.P. Singh**, India Institute of Technology, Kharagpur.

"Quantum Wells and Heterostructure of III-V Compound Semiconductors: Metal Organic Vapor Phase Epitaxy and Spectroscopy," **B.M. Arora**, TIFR, Bombay.

"Chemical Vapor Deposition of Electronic Materials," **S.A. Shivashankar**, IISc, Bangalore.

"Synthesis and Properties of Silicon-Based Light-Emitting Nanocomposites," **K. Vijayamohanam**, National Chemical Laboratory, Pune.

S. V. SUBRAMANYAM
General Secretary
MRS-India



Call For Papers

Abstract Deadline: November 1, 1996 • EXHIBIT: APRIL 1-3

For additional meeting information, contact:

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A: Amorphous and Microcrystalline Silicon Technology - 1997

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B: Epitaxial Growth - Principles and Applications

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C: Processing of Compound Semiconductors for High-Speed Devices

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D: Gallium Nitride and Related Materials

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E: Defects and Diffusion in Silicon Processing

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F: Rapid Thermal and Integrated Processing VI

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G: Flat Panel Display Materials and Large-Area Processes

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H: Organic Electronic Materials and Devices

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I: Polycrystalline Thin Films III - Structure, Texture, Properties, and Applications

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J: Materials Reliability in Microelectronics VII

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K: Multilevel Process Integration

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L: Epitaxial Oxide Thin Films

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M: Magnetic Ultrathin Films, Multilayers, and Surfaces

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N: Low-Dielectric Constant Materials and Applications in Microelectronics

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O: Materials/Failure Analysis for Silicon ULSI Processing

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P: Science and Technology of Semiconductor Surface Preparation

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Q: Thermoelectric Materials - New Directions and Approaches

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R: Materials Issues Related to Development of Textured High-Temperature Superconducting Conductors

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S: Materials for Optical Limiting II

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T: Computational Materials Science at the Mesoscale

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U: Rapid Prototyping & Solid Freeform Manufacture

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V: Interfacial Effects and Organization of Inorganic-Organic Composite Solids

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W: Metastability and Critical Phenomenon in Polymer Phase Behavior

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X: Frontiers of Materials Research

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Y: Materials in Sports and Recreation

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Z: Workshop on Specimen Preparation for Transmission Electron Microscopy of Materials IV

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1997 SPRING MEETING CHAIRS

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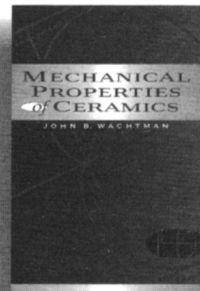
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Mechanical Properties of Ceramics

John B. Wachtman, *Rutgers University, Piscataway, New Jersey*

Without an understanding of the mechanical behavior of ceramics, catastrophic material breakdown is imminent. This book presents a basic introduction to the characteristics of ceramics and explains the main aspects of its mechanical behavior. Also covered are the influence of microstructure in the design and development of ceramics. Includes figures and tables for ceramics classifications and equations for computation of stress and fractures parameters. Ideal for students at all levels of study and helpful as a guide for professionals in the ceramics industry.

1996 • 464 pp. • 0-471-13316-7 • \$64.95



Novel Optical Materials and Applications

Iam-Choon Khoo, *Pennsylvania State University*,
Francesco Simoni, *University of Ancona, Italy* and
Cesare Umeton, *University of Calabria, Italy*

For graduate students and professionals alike, this book devotes contemporary attention to several categories of optical materials that possess unique characteristics for application in optical materials including nonlinear, integrated and electro optics. Applications for optical storage and information processing are also given. Materials discussed include liquid and photorefractive crystals, polymers and other specially engineered materials.

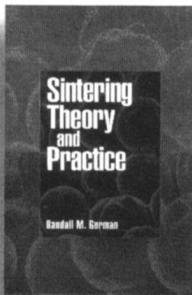
October 1996 • 380 pp. (est.)
0-471-12793-0 • \$69.95 (tent.)

Transport Phenomena in Materials Processing

Sindo Kou, *University of Wisconsin, Madison*

Understanding the fundamentals of liquid flow and heat and mass transfer are critical to the understanding of this ever-growing academic subject area. Designed for advanced undergraduate and first-year graduate levels, this book offers a clearer understanding of transport phenomena materials processing without the burden of tedious mathematical maneuvers. This book presents an introduction to the subject and includes over thirty commonly encountered boundary conditions summarized in six charts, step-by-step problem-solving techniques and over 40 subsections of practical applications.

October 1996 • 672 pp. (est.) • 0-471-07667-8 • \$54.95 (tent.)



Sintering Theory and Practice

Randall M. German, *Pennsylvania State University, University Park*

Despite its fundamental importance as a step in the manufacturing of ceramics and certain metals, never before has a book addressed both the practical and theoretical applications of sintering. For use in the academic, scientific and professional worlds, this book provides theory, definition and application and contains over six thousand references that address the need for control methods to guard against physical and structural defects in a clear and concise fashion.

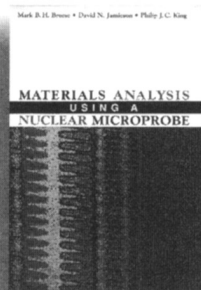
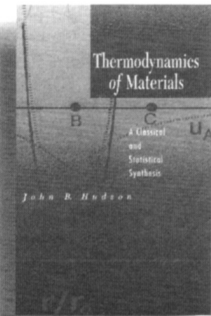
1996 • 550 pp. • 0-471-05786-X • \$74.95

Thermodynamics of Materials: A Classical and Statistical Synthesis

John B. Hudson, *Rensselaer Polytechnic Institute, Troy, NY*

Reviews and introduces with a more practical approach to classical and statistical thermodynamics within the framework of materials science. This unique advanced academic and professional-level text stresses the natural connection between the two approaches, to simultaneously gather practical information about real systems and present the relations between the molecular-level properties of systems and their properties on a macroscopic scale.

1996 • 365 pp. • 0-471-31143-X • \$59.95



Materials Analysis Using A Nuclear Microprobe

Mark B.H. Breese, *Oxford University, London*,
David N. Jamieson, *University of Melbourne, Australia*, and
Philip J.C. King, *Oxford University*

Due in part to the development of semiconductor devices, attention has diverted from mere scientific inquiry to application in the areas of ion-solid interactions and nuclear microprobes. The tools this new technology provides will bring about astonishing advances in materials research using ion beam modification and analysis. Aimed at the graduate level, this book provides basic theory and detailed descriptions of the various uses of nuclear microprobes and also aids in the planning and managing of experiments using these new techniques for microprobe hardware.

1996 • 380 pp. • 0-471-10608-9 • \$89.95

WILEY

Dynamic Loadings and Characterization of Fiber-Reinforced Composites

Robert L. Sierakowski and Shive K. Chaturvedi
Ohio State University, Columbus

Designed for practicing engineers and advanced graduate study, this text presents concepts that will provide significant understanding of complexities in characterizing dynamic events and the corresponding response of advanced fiber composite materials and structures. It also presents current technical literature available for developing an undertaking of the behavior of such systems for design purposes.

February 1997 • 200 pp. (est.)
0-471-13824-X • \$64.95 (tent.)

Interfaces In Materials: Atomic Structure, Thermodynamics and Kinetics of Solid/Vapor, Solid/Liquid and Solid/Solid Interfaces

James M. Howe, *University of Virginia, Charlottesville*

One of the first of its kind, this self-contained text is a valuable contribution to the study of the atomic structure and properties of the three most important interfaces. Beneficial to the study of materials science, physics and chemical engineering as well as researchers in the governmental and industrial fields, this book also contains exercises that stress key concepts at each chapters' conclusion.

January 1997 • 460 pp. (est.)
0-471-13830-4 • \$74.95 (tent.)

Advanced Composites Manufacturing

Timothy Gutowski
Massachusetts Institute of Technology, Cambridge

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