

## Foreword

The International Conference on Superconductivity held at Bangalore from 10 to 14 January, 1990, was acknowledged a success in terms of the scientific content, as well as the excellent opportunity it provided for useful interactions. The plenary talks were delivered by B Raveau, C N R Rao, J M Tarascon, P Chaudhari and C M Varma. An overview of the various facets of superconductivity was given by S K Sinha, H Maeda and T V Ramakrishnan. Invited talks were by B Batlogg, K Kitazawa, Qiang Sheng Yang, Arun Inam, Arunava Gupta, R Bhargava, T Kobayashi, A V Narlikar, M A Subramanian, K L Chopra, R Vijayaraghavan, A Bianconi, M Cardona, D Wohlleben, D K Finnemore, R Srinivasan, Y Iye, H Hayakawa, J Akimitsu, K Moorjani, P Chaddah, S S Jha, P Lederer, N Kumar, B K Chakraverty, G Baskaran, D J Bishop, C E Gough, M Yu Kupriyanov, Yu D Tretyakov, M Nakao, S Pagano and G B Donaldson. These lectures were of very high quality and represented the state of the art. There was in-depth discussion after each lecture. Many new points were revealed for the first time at the conference. These presentations have now been published as a book titled '**International Conference on Superconductivity—ICSC**' by the World Scientific Publishing Company, Singapore.

In addition to the invited presentations, the conference owes its success to the oral presentations and the contributed papers. K N R Taylor, Z Iqbal, E Gmelin, Y Hariharan, R B Flippen, R Suryanarayanan, D McK Paul, T P Das, A K Rajagopal, H R Krishnamurthy and V V Kartsovnik made brief oral presentations of some of their recent contributions to superconductivity. The prolific work of a large number of scientists in the area of superconductivity has resulted in many contributed papers. These were duly refereed and 394 of them were accepted for presentation at the conference. Out of these, 298 papers in the following areas were presented.

*Preparation*—Bulk solid state, bulk substitution/addition, phase stability, other routes, single crystals—melt, flux, thin films and thick films.

*Characterization*—Spectroscopic (optical, IR etc.), structure, neutron scattering, magnetic resonance NMR, NQR, ESR, thermal (specific heat, expansion), Mössbauer, positron annihilation, SMS and others.

*Electrical properties*—Resistivity, tunnelling, A.C. conductivity, microwave absorption, thermoelectric power, ultrasonic structure, photoemission, XAS and XANES.

*Magnetic properties*—Critical field, flux lines, creep, critical current, susceptibility, spin glass and magnetization.

*Theory*—Classical models (flux lattice, G.L. model, lattice dynamics, band structure), BCS, RVB, magnetism, dipole, glass, Hubbard, polaron excitation, spin charge bags, localization, J J theory, local pairs and others.

*Applications*—Wires and tapes, Josephson junction, devices, electrical machinery and others.

The contributed papers reflected the large output of research work in this fast developing area. There were intensive, critical discussions on the contributed papers as well.

The manuscripts of the contributed papers were again refereed after the conference.

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We are delighted that the *Bulletin of Materials Science* has agreed to publish these papers as three special issues of the journal (Volume 14, Nos. 2 to 4 of 1991). The present number is the second of these special issues.

It is our fond hope that the academic interaction initiated at the conference will continue and that these published papers will be found useful by the scientific community.

The conference was sponsored by the Superconductivity Programme Management Board and the Department of Science and Technology and was also supported by many other agencies. We are thankful to many of our colleagues who have willingly shouldered the responsibility of refereeing the papers, the authors for their patience and cooperation, the agencies for their support and the staff of the Indian Academy of Sciences for their painstaking efforts in bringing out these special issues.

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