

## Preface

This special volume of Solid State Phenomena contains papers selected from those presented at the National Symposium on Advances in Materials Science and Technology (AMST-2012), held on 03-04 February 2012 at the Convention Centre of Gujarat University, Ahmedabad, India. A total of 135 papers were presented at the symposium, including 01 keynote, 02 plenary, 08 invited talks, 39 oral and 87 poster presentations.

The technical programs within two days of the symposium AMST-2012 had sessions of different theme based presentations. The symposium provided a platform for academics, scientists, technologists and industrial players to present innovations, exchange views, share results and discuss opinions and thoughts in the field of recent advances in materials science and technology.

The areas covered at the symposium included novel synthesis, processing and applications of advanced materials, micro and nano-structures, oxides and magnetic materials, nanomaterials, semiconductors, microwave dielectric, multiferroics, computational materials science, modeling and simulation of advanced materials and technology such as cryogenics and smart material for health care.

The success of this national symposium has to be attributed to the efforts of the Gujarat University and organizing committee of AMST-2012. We sincerely thank Drs. P.D. Lele, M.E. James, P.R. Vyas and S.M. Vyas for their crucial roles and untiring efforts during the symposium. We are grateful to Hon'ble Vice Chancellor, Hon'ble Pro Vice Chancellor and administrative staff of Gujarat University, for their support and encouragements in organizing this mega-event.

We acknowledge the generous financial support extended to us by the University Grants Commission (UGC), India under the Special Assistance Program (Phase-I), Department of Science and Technology, New Delhi, Gujarat Council on Science and Technology (GUJCOST), Gandhinagar and Department of Atomic Energy-BRNS, Government of India.

We wish to thank all the reviewers for sparing their valuable time in reviewing large number of manuscripts of which selected ones are published in this volume. We thank Thomas Wohlbier, Director of Publications, Trans Tech Publication (TTP) Ltd. & his wonderful team for all their support in bringing out this volume. Once again, thank you all!

**U.S. Joshi, D. Tripathi, R.B. Jotania, V.A. Rana and P.N. Gajjar**  
Editors, Advances in Materials Science and Technology

Date : 20<sup>th</sup> September 2013

## Committees:

### Symposium Organizers

**Chief Patron :** Dr. Parimal H. Trivedi, Vice Chancellor, Gujarat University

**Patron :** Dr. Mukul Shah, Pro-Vice Chancellor, Gujarat University

**Co-Patron :** Prof. (Mrs.) S. K. Menon, Director, School of Sciences

**Convener :** Prof. P.N. Gajjar, **Co-convener :** Prof. (Mrs.) R.B. Jotania

**Organizing Secretary :** Dr. U.S. Joshi & Dr. (Mrs.) D. Tripathi

**Treasurer :** Dr. P.D. Lele & Dr. S.M. Vyas

**Technical Committee :** Dr. M E. James, Dr. P.R. Vyas, Dr. V.A. Rana

### Local Organizing Committee

Dean, Faculty of Science Gujarat University, Registrar Gujarat University

Development Officer Gujarat University

Dr. A.K. Shah

Mr. U.V. Shah

Mr. H. D. Padia

Dr. D. H. Gadani

Dr. Anita Gharekhan

Dr. R.R. Iyer

Dr. T.C. Pandya

Dr. M.R. Gadhvi

Mr. M.J. Chavda

Mr. V.A. Bheda

Dr. Urvi Chhaya

Dr. U.N. Trivedi

### National Advisory Committee

**Prof. A.K. Raychaudhuri**

SNBCBS, Kolkata

**Dr. Amit Roy**

IUAC, New Delhi

**Prof. A. Sen**

IPR, Ahmedabad

**Prof. R.C. Budhani**

NPL, Delhi

**Dr. S. Kailas**

BARC, Mumbai

**Dr. J. N. Goswami**

PRL, Ahmedabad

**Dr. R. Navalgund**

SAC-ISRO, Ahmedabad

**Prof. P. Chaddha**

UGC-IUC, Indore

**Prof. S. B. Krupanidhi**

IISc, Bangaluru

**Prof. V. Ramagopal Rao**

IIT-B, Mumbai

**Prof. S. Chandra**

BHU, Varanasi

**Prof. Pusan Ayyub**

TIFR, Mumbai

**Prof. K. S. Narayan**

JNCASR, Bangaluru

**Dr. S.K. Gupta**

BARC, Mumbai

**Prof. S.B. Ogale**

NCL, Pune

**Prof. S. M. Shivaprasad**

JNCASR, Bangaluru

**Prof. R. Pinto**

IIT-B, Mumbai

**Prof. B.N. Dev**

IACS, Kolkata

**Dr. P.Asthana**

DST, New Delhi

**Dr. B.D. Kulkarni**

NCL, Pune

**Prof. A.R. Jani**

S.P. Univ., V. V. Nagar

**Prof. L.M. Manocha**

S. P. Univ., V. V. Nagar

**Prof. A.C. Sharma**

M.S. Univ., Vadodara

**Prof. R.V. Upadhyay**

CHARUSAT, Changa

**Prof. H.H. Joshi**

Saurashtra Univ., Rajkot

**Prof. S.P. Bhatnagar**

Bhavnagar Univ., Bhavnagar

**Prof. K.C. Poria**

VNSG Univ., Surat

**Prof. K. Venugopalan**

ML Sukhadia Univ., Udaipur

**Prof. B.L. Ahuja**

ML Sukhadia Univ., Udaipur

**Shri Ravi Saxena**

DST, Gujarat

**Shri N.K. Sahoo**

Science City, Ahmedabad

## **Symposium Sponsors**

**Gujarat University, Ahmedabad, INDIA**

**University Grants Commission (UGC), INDIA**

**Gujarat Council on Science & Technology (GUJCOST)**

**Department of Science & Technology (DST), INDIA**

**Department of Atomic Energy (DAE-BRNS), INDIA**