

Preface

Carbon, in its various manifestations, is one of the most important industries of the modern civilization. A wide variety of carbon products can be prepared which can offer quite contrasting and sometimes even contradicting functional properties. In India, we have many National Programmes such as Inter Continental Ballistic Missiles, Light Combat Aircraft, Nuclear Energy and Space programme. All these programmes need special forms of carbon which are not available off the shelf and need to be developed within the country through indigenous R&D.

As far as conventional carbon products are concerned, India is in a good position with a global share of about 10% in case of graphite electrodes alone. In fact, India exports graphite electrodes to all countries in the world including USA, Germany, France, Korea, China, etc. However, the current carbon nanotubes has come a long way since the days of carbon fibers. The advent of fullerenes, carbon nanotube and graphene has changed the course of carbon research. Therefore, there is a strong need to give a push to these modern carbon products development followed by their production in the country. In order to achieve this, the Indian Carbon Society has been promoting carbon science and organizing seminars/workshops/symposia at regular intervals.

First Asian Carbon Conference (FACC 2009), has been a land mark in terms of giving exposure to young carbon researchers to the area experts who were specially invited from all over Asia to participate and give invited talks in their respective area of specialization. There were special talks on carbon nanotubes, their production as well as specific application in the area of hydrogen adsorption.

This special issue of *Indian Journal of Engineering & Materials Sciences (IJEMS)* contains 13 selected and refereed papers which have been presented during FACC 2009. The articles included in this volume cover a fairly large spectrum on current research activities on various aspects of carbon starting from the basic concept to advanced applications like photovoltaic devices. This volume will provide the readers with a broad overview and sampling of the innovative research in the field of carbon materials. This will also boost the researchers to contribute with quality research in the field.

We are extremely grateful to the contributors as well as the reviewers for their whole hearted cooperation in this venture. We are also thankful to the Director NISCAIR for having agreed to bring out a special issue containing selected papers presented during FACC 2009. Finally, we would like to express our special gratitude to Dr R S Beniwal and Ms. Kanika Malik, Editors, Indian Journal of Engineering & Materials Sciences, NISCAIR (CSIR), whose active interest and untiring efforts have culminated in bringing out this special volume of IJEMS on “**Multifunctional Carbon Materials for 21st Century**”.

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