

PREFACE

The XXI International Materials Research Congress (IMRC) was held in Cancun Mexico from 12 to 17 August 2012. It was organized by the Mexican Materials Society (MMS). The IMRC included 5 plenary lectures, 1 science luncheon, 326 invited talks, and 1726 oral and poster presentations distributed in 28 different symposia. About 1300 specialized scientists from more than 40 countries participated during the congress.

This Special Volume of Materials Science Forum is the results of the contribution of the participants to the Symposium 2D "Structural and Chemical Characterization of Metals Alloys and Compounds". This event is intended to be a forum for the dissemination of research results on materials science which provided an excellent opportunity for materials scientists around the world to have a common platform to exchange their findings and to discuss developments and to start collaborating at the national and international level. It was also aimed at promoting contacts among researchers and research groups for the creation of multinational thematic and research networks, as well as promoting contacts for future collaboration.

The structural and chemical characterization of different materials such as metals, alloys, ceramics, steels, composites, polymeric compounds, superalloys, intermetallic compounds and nanomaterials are included. They were prepared with different techniques. Some important topics addressed at the conference were the analytical techniques focused on the microstructural, chemical, optical, electronic, magnetic and mechanical properties of materials. Structural characterization techniques included scanning electron microscopy (SEM), X-ray diffraction (XRD), transmission electron microscopy (TEM), atomic force microscopy (AFM), light optical microscopy (OM), atomic absorption spectroscopy (AAS), luminescence, thermoluminescence (TL), energy transfer, photorefractive effect, photocatalysis, and laser emission. Theoretical models developed from these properties are also featured.

The Symposium 2D program included 67 oral and 146 poster presentations. In addition, invited talks were focused on different topics like composites, coatings, electron microscopy and X-ray diffraction. 24 articles were selected after peer review and were recommended for publication in this special volume.

We thank to the members of the Mexican Materials Society advisory committee, as well as to all the reviewers for their valuable comments and dedication, which have certainly helped to improve the quality of manuscripts. We also wish to thank the Mexican Materials Society, National Autonomous University of Mexico (UNAM) and Mexican Petroleum Institute (IMP) for their support in organizing the symposium. We would like to express our gratitude and gratefulness to the Centro de Física Aplicada y Tecnología Avanzada-UNAM for your financial support in the edition of this special journal. Finally, we would like to thank all the authors for their contributions to the journal.

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