

## **PREFACE**

The XXIV International Materials Research Congress was held on August 16–20, 2015, in Cancún, Mexico. It was organized by the Sociedad Mexicana de Materiales (SMM). About 1600 specialized scientists from more than 40 countries participated in the 34 different symposia, workshops, plenary lectures and tutorial courses. The 34 symposia that comprise the technical program of IMRC 2015 are grouped in several clusters, namely: Nanoscience and Nanotechnology, Biomaterials, Materials for Energy, Fundamental Materials Science, Materials Characterization, Materials for Specific Applications, Magnetic and Electronic Materials and General.

This Materials Research Society Proceedings volume contains papers presented at the Symposium 5B “Structural and Chemical Characterization of Metals, Alloys and Compounds” of the XXIV International Materials Research Congress. This event is intended to be a forum for the dissemination of research results on materials research. The participants and the organizers have found this event to be very successful due to the high quality and novelty of the scientific results presented. Among the important achievements of the symposium are the new personal contacts among the scientists for the creation of multinational thematic and research networks, as well as promoting contacts for future collaboration.

This volume covers several aspects of the structural and chemical characterization of materials in the following areas: metals, alloys, steels, composites, polymeric compounds, welding, nanomaterials, and surface coatings, among others. The structural characterization techniques include: scanning electron microscopy (SEM), X-ray diffraction (XRD), transmission electron microscopy (TEM), Raman spectroscopy, optical microscopy (OM), Fourier transform infrared spectroscopy (FTIR), differential thermal analysis (DTA), differential scanning calorimetry (DSC), thermogravimetry analysis (TGA), thermo luminescence (TL), laser emission, and so forth. Theoretical models from these properties are also included.

The scientific program of Symposium 5B includes 69 oral and 176 poster presentations. This volume contains papers based on contributions presented at symposium 5B of which all have been accepted after peer review.

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