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Materials Characterization

Editors: Ramiro Pérez Campos, Antonio Contreras Cuevas and Rodrigo A. Esparza Muñoz

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**MATERIALS RESEARCH SOCIETY
SYMPOSIUM PROCEEDINGS VOLUME 1242**

Materials Characterization

Symposium held August 16–21, 2009, Cancun, Mexico

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PREFACE

The XVIII International Materials Research Congress 2009 was held in Cancun, Mexico from August 16–21, 2009. It was organized by The Mexican Materials Research Society. About 1600 specialized scientists from more than 30 countries participated in the 21 different symposia. Additionally, an Energy Forum and a Water Forum were developed during the Congress. Prior to the start of the Congress, three tutorial courses were given: Nanotechnology, Photovoltaics and Solar Energy Materials, and Technological Innovation.

This Materials Research Society proceedings contains papers contributed to Symposium 4, "Materials Characterization." This event was intended as a forum for the dissemination of research results on materials science, and also provided an excellent opportunity for materials scientists around the world to have a common platform to exchange their findings and to discuss developments and 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.

Some important topics addressed at the conference were the analytical techniques focused on the microstructural, chemical, optical, electronic, magnetic and mechanical properties of materials. These included metals, alloys, ceramics, steels, composites, concrete, nanomaterials, and surface coatings, among others. Structural characterization techniques included scanning electron microscopy (SEM), X-ray diffraction (XRD), transmission electron microscopy (TEM), atomic force microscopy (AFM), light optical microscopy, atomic absorption, luminescence, thermo luminescence, energy transfer, photorefractive effect, photo catalysis, photoconductivity and laser emission. Theoretical models developed from these properties are also featured.

The symposium program included 65 oral and 158 poster presentations. In addition, invited talks were focused on different topics such as composites, alloys, electron microscopy and corrosion prevention applications. This volume contains 33 papers that were selected after peer review and were recommended for publication in this special issue.

We would like to thank the members of the MRS-Mexico advisory committee, as well as the reviewers for their valuable comments, which have certainly helped to improve the quality of the manuscripts. We also wish to thank The Mexican Materials Research Society, UNAM and Mexican Petroleum Institute (IMP) for their support in organizing the symposium.

Additionally, we would like to thank all those who have worked to make this Congress an exciting and fruitful meeting, including the meeting chairs, symposium organizers, IMRC staff, MRS staff, editors, the management committee, the advisory committee, and The Materials Research Society of Mexico.

Ramiro Pérez Campos
Antonio Contreras Cuevas
Rodrigo A. Esparza Muñoz

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