



Editorial

XVIII International Materials Research Congress: Symposium on Advances in Semiconducting Materials—Cancun, August 2009

The XVIII International Materials Research Congress was held in Cancun, Mexico from 15 to 19 August 2009. It was jointly organized by Academia Mexicana de Ciencias de Materiales (AMCM) and the Materials Research Society, USA. A total of 1804 abstracts were received including 1070 from specialized scientists from 46 countries who participated in various events.

This special issue contains papers contributed to the Symposium—13 titled “Advances in Semiconducting Materials”. An updated knowledge on the recent advances in various semiconducting materials is of great interest for both fundamental research and industrial applications. This event is intended as a vehicle for the dissemination of research results on various semiconducting materials, which will provide an excellent opportunity for industries and researchers 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.

The technical objective of this symposium is to address key issues like growth, characterization, theoretical studies, device applications and material problems related to semiconducting (SC) materials. The emphasis of this symposium will lie on the various growth techniques and properties of organic semiconductors, inorganic semiconductors, semiconductor nanostructures, oxide SC, hybrid SC, magnetic SC, ferroelectric SC, low temperature SC, layered SC, microscopy of SC materials, SC fabrication and advanced packaging materials, etc. The symposium will focus on most recent advances in the study of semiconducting material properties such as structural and morphological assessment using XRD, SEM, HRTEM etc., electronic, photonic, photoconductivity, optical, and thermal analyses. Theoretical models from these properties were also included. One reason why semiconductors have become the material of choice for the electronic industry is the existence of highly sophisticated epitaxial growth techniques. The industrial applications and incessant demand have in turn, led to remarkable advances and increased sophistication of these techniques. These techniques have made it possible to synthesize artificial crystal structures known as super lattices and quantum wells. Recently nanostructured semiconductors show interesting properties which have not yet received much attention due to various limitations. This shows that the field of semiconductor engineering still has plenty of room for growth and expansion.

Recent advances in fabricating low dimensional nanostructures take advantage of either alignment of atoms with substrates or strain between substrate and epilayer. A coordinated effort will be made to have a strong interaction between semiconducting materials and device research. This coordination provides for maximum exchange of information between attendees of the conferences. It was also aimed at bringing together various researchers and research groups from across the globe for the creation of multi-national thematic and research networks, as well as promoting interaction for future collaborative joint projects within some of the American and European Union funded, and other transnational collaborative programs.

For the symposium included in this special issue, 161 abstracts were received which included 12 invited talks, 46 oral and 103 poster presentations. Invited talks were focused on the potential application of nanomaterials in various fields of application especially in the area of band gap engineering for energy conservation devices, sensors, corrosion prevention applications, etc. Among the 92 articles submitted to the conference, 58 articles were selected after peer review and were recommended for publication in this special issue.

I would like to thank symposium organizing chairs Dr. David Zubia, Dr. Antonieta Garcia Murillo, Dr. Vijay Singh and members of the International Scientific Advisory Committee, as well as the reviewers for their valuable comments, which have certainly helped to improve the quality of manuscripts. My thanks are due to the Editor-in-Chief, and his associates of Materials Science and Engineering B for their timely help and advice for the successful completion of the issue. I also wish to thank Dr. René Asomoza Palacio, General Director, Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional (CINVESTAV), Mexico, and the Mexican Academy of Materials Science, for their support in organizing the symposium.

Guest editor

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