Preface

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The International Conference on Intergranular and Interphase Boundaries in Materials “*iib*” is a highly anticipated event, held every three years, that constitutes a unique international forum bringing together world leading specialists working in different areas of Interface Science. Following *iib2010* in Shima city, Mie, Japan, the fourteenth conference of the series, *iib2013*, was held in Athena Pallas Village hotel located in Chalkidiki, near the city of Thessaloniki in Central Macedonia, Greece.

iib2013 integrated fundamental and applied research, thereby merging cutting edge research with up-to-date and evolving applications. It strongly promoted an interdisciplinary approach to various issues related to interfacial phenomena in solids. Emphasis was given to emerging nanostructured materials engineering for tailoring desired materials properties, as well as to the participation of graduate students, postdocs, and early career researchers, which represent the critical human resources for next generation science. *iib2013* was, therefore, dedicated to addressing the most recent advances and defining future directions in the field of interface science.

In view of the previous discussions at the latest *iib* conferences and the consultancy of the International Advisory Board, this conference was specially designed to comprise high scientific interest topics, such as: (1) Advanced characterization methods including atomic-scale structure of interfaces in

conjunction with their electrical, electronic, and optical properties. (2) Mechanical properties of interfaces. (3) Multiscale modeling, consisting of analytical approaches, numerical methods, atomic and electronic calculations, and phase field modeling. (4) Thermodynamics and kinetics, including phase transformations, segregation and transport phenomena, migration and gliding, growth and recrystallization. (5) Advanced and emerging materials, namely, electronic, magnetic and photonic materials, energy materials, nanomaterials and low-dimensional systems, metals, ceramics, composites, polymer and organic materials, and biomaterials.

In order to offer a productive and at the same time stimulating conference, the Organizing Committee have chosen the venue of Sithonia, which is one of Chalkidiki's peninsulas offering the unique scenery of beaches combining the blue of the sea with the green of pine-clad hills descending to the beach. Twenty-two countries were represented in *iib2013* by 129 participants and 22 accompanying guests. Their contributions were mainly allocated in 15 oral sessions (4 plenary, 16 invited, and 59 oral talks), as well as two poster sessions comprising 60 presentations. Contributors to the conference were invited to submit full papers to be considered for inclusion in a special section of the Journal of Materials Science. Those that satisfied the expectations of the reviewers and the standards of the Journal are included in this special issue of *iib2013*.

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iib2013 was organized by the Organizing Committee members, under the auspices of the Physics Department of the Aristotle University of Thessaloniki (AUTH), Greece, and the Training and Consulting on High Performance Materials (TCM), Antony, France, with the kind support of the Region of Central Macedonia, Greece. The conference

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Expecting a fruitful and enjoyable next event, it would be a pleasure to attend the *iib2016* in Russia.