

Preface

This volume includes the 79 papers selected from the 6th International Conference on Physical and Numerical Simulations of Material Processing (ICPNS'2010), held in Guilin, China on November 16-19, 2010.

Physical and numerical simulations make it possible for materials science to go from experience-based to science-based, and from qualitative to quantitative. Physical simulations, which effectively reveal the principles of materials' structure and properties evolutions, save the time and money significantly whereas numerical simulations enable the full description and design of various material processes which are impossible experimentally. Naturally, both simulations are gaining attention worldwide, and will be a prominent approach of materials research in the 21st century.

The International Conference on Physical and Numerical Simulations of Material Processing (ICPNS) is such a platform for timely exchange of the recent academic and experimental accomplishments in the field of physical and numerical simulations. The ICPNS'2010 is organized by Chinese Mechanical Engineering Society, co-sponsored by 20 societies and universities around the world and hosted by Guilin University of Electronic Technology, Huaqiao University and Henan Polytechnic University. During the conference, more than 600 participants from 38 countries/regions submitted their 530 research papers. These selected 79 papers represent the frontier in the research field of processing and simulations on super fine grain and nano materials.

On behalf of the organizing committee, I sincerely thank the sponsors and hosting universities for their efficient work as well as the support from NSFC, TMS and DSI. I also would like to express my thanks to Academician Changxu SHI, the renowned materials science expert, for his full advice, and to Academician Dan Shechtman, Nobel chemistry laureate and other members of International Advisory Committee as well as 35 experts around the world for their diligent work on paper review. They have set high academic standard for the conference. Finally, I owe lots of gratefulness to Editorial Board, particularly to Professor Ilya Ovid'ko and Dr. Ivan Archakov for their hard work on the special issues.

Professor Jitai NIU

Chairman of the Organizing Committee of ICPNS'2010

Director of Materials Physical Processing and Numerical Simulation Branch

Materials Institution of Chinese Mechanical Engineering Society, China

niujitai@163.com

<http://www.icpns.org>