

Preface

A great number of innovative works & efforts are being undertaken by scientists and engineers worldwide to meet ever-increasing demand for advanced materials, to put forward for R & D and to speed up the practical applications of emerging new materials. This book thus aims to provide an in-depth coverage of current researching trends pertinent to materials science and engineering ranging from new materials design and characterization, to materials manufacturing process optimization, to computer-aided materials calculations. The targeted readers are undergraduates, researchers and industrial engineers who need to keep abreast of most recent advances in these important topics.

In general, this book covers 28 papers accepted for presentations in the 2014 2nd International Conference on Materials Engineering (ICMEN2014), which was held in the beautiful city of Nanjing, China, between May 17th and May 18th, 2014. These papers have touched upon the researching fronts and hot topics in materials engineering, such as innovative synthesis of new materials, new characterization of materials, structural-property relationship, practical materials processing technologies, and other material-related theories (including modeling, performance analysis, effects of key factors). In particular, quite some highlights can be found in this book. To name a few, the works on synthesis of polymeric composite, unusual processing methods for alloy, high strengthened cements obtained are all very innovative and appealing to readers.

You may have sensed that this book reports many works coming from truly multidiscipline areas in materials engineering. It is organized on four sections in sequence. The first section focuses on Energy and Environment Materials, while the second dealing with Function and Electronic Material. Papers concerning High Performance Structural Materials are put into the third section. The last section concentrates on papers on Materials Processing Technology, including Materials Processing and Handling, Semiconductors materials manufacturing, Fatigue and Fracture, and Structural modeling, and so on so forth.

Herein, we would like to sincerely thank all the authors for sharing with their new ideas, researching results, practical experience and best field practices. Special thanks will be given to all the reviewers/experts in evaluating and selecting all high quality papers.

We hope that you will enjoy reading this book.

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